



This is a digital copy of a book that was preserved for generations on library shelves before it was carefully scanned by Google as part of a project to make the world's books discoverable online.

It has survived long enough for the copyright to expire and the book to enter the public domain. A public domain book is one that was never subject to copyright or whose legal copyright term has expired. Whether a book is in the public domain may vary country to country. Public domain books are our gateways to the past, representing a wealth of history, culture and knowledge that's often difficult to discover.

Marks, notations and other marginalia present in the original volume will appear in this file - a reminder of this book's long journey from the publisher to a library and finally to you.

Usage guidelines

Google is proud to partner with libraries to digitize public domain materials and make them widely accessible. Public domain books belong to the public and we are merely their custodians. Nevertheless, this work is expensive, so in order to keep providing this resource, we have taken steps to prevent abuse by commercial parties, including placing technical restrictions on automated querying.

We also ask that you:

- + *Make non-commercial use of the files* We designed Google Book Search for use by individuals, and we request that you use these files for personal, non-commercial purposes.
- + *Refrain from automated querying* Do not send automated queries of any sort to Google's system: If you are conducting research on machine translation, optical character recognition or other areas where access to a large amount of text is helpful, please contact us. We encourage the use of public domain materials for these purposes and may be able to help.
- + *Maintain attribution* The Google "watermark" you see on each file is essential for informing people about this project and helping them find additional materials through Google Book Search. Please do not remove it.
- + *Keep it legal* Whatever your use, remember that you are responsible for ensuring that what you are doing is legal. Do not assume that just because we believe a book is in the public domain for users in the United States, that the work is also in the public domain for users in other countries. Whether a book is still in copyright varies from country to country, and we can't offer guidance on whether any specific use of any specific book is allowed. Please do not assume that a book's appearance in Google Book Search means it can be used in any manner anywhere in the world. Copyright infringement liability can be quite severe.

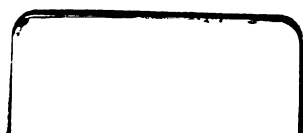
About Google Book Search

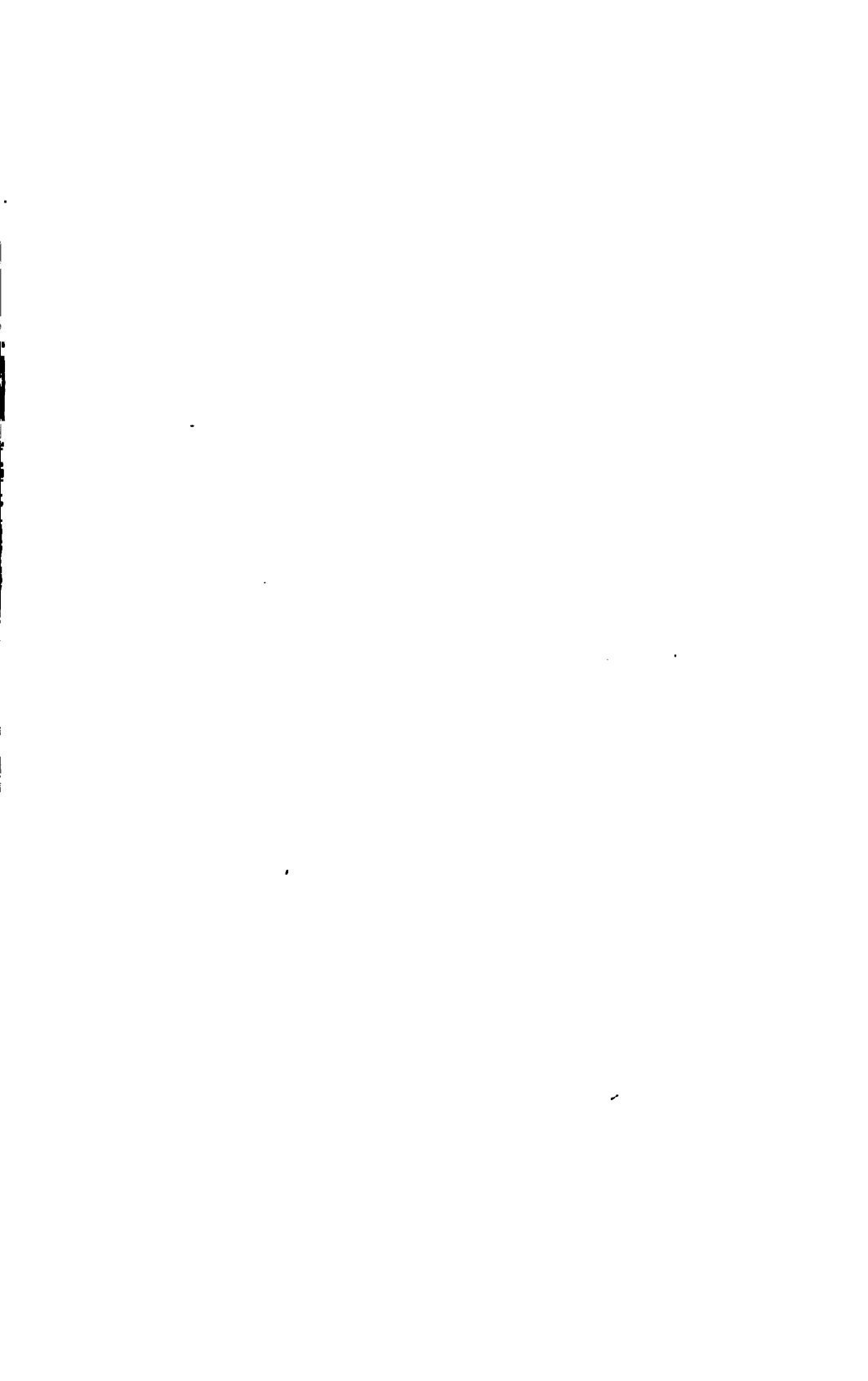
Google's mission is to organize the world's information and to make it universally accessible and useful. Google Book Search helps readers discover the world's books while helping authors and publishers reach new audiences. You can search through the full text of this book on the web at <http://books.google.com/>

Econ 5205.35.13



HARVARD
COLLEGE
LIBRARY





THE PRINCIPLES OF BOND INVESTMENT

BY

LAWRENCE CHAMBERLAIN

With Kountze Brothers, Bankers, New York, and staff lecturer on finance in
the University of Pennsylvania and in New York University,
School of Commerce, Accounts and Finance

THIRD EDITION



NEW YORK
HENRY HOLT AND COMPANY
1913

From 32.25.35.13



Mrs. Raymond E. Huntington

COPYRIGHT, 1911,
BY
HENRY HOLT AND COMPANY

Published November, 1911

THE QUINN & BODEN CO. PRESS
SAUNTER, N. Y.

PREFACE

There is so much miscellaneous matter in this book that the reader who is seeking some specific detail is advised to consult freely the Table of Contents, and above all the Index. The Table of Contents is arranged to show at a glance the argument of the work; the line of thought can readily be traced there, and it will serve those who wish a bird's-eye view of the field of bond investment, and those who wish to refresh their memories as to the subject-matter of this book. The Index is exceedingly full and should enable one to find any detail he seeks.

It has seemed impracticable to write the book, throughout, to scale. Certain topics have been treated briefly because they form the subject-matter of books that are already in print or that friends now have in preparation. Part II, devoted to *Civil Loans* (i.e. government and municipal loans), is the most detailed. This is because so little, comparatively speaking, has been written hitherto about these securities. Railroad finance has received, and is now receiving, careful and elaborate study. Municipal finance has been strangely neglected and the practice of it is at sixes and sevens. It is hoped that law-makers and municipal officers may find suggestions here, from illustrations of the bond practice of others, by which they may standardize and improve the laws of this country pertaining to municipal debt.

There is another sound reason for elaborating the chapters on *Civil Loans*. The conditions which occasion municipal borrowing are sufficiently uniform to make correct generalization possible. No generalizations, equally broad, are safe for the bonds of most private corporations, especially of railroads, for private corporations are so sensitive to changes in industrial conditions, in management, and in policies, and the bonds of private corporations are so diverse in nature, especially the bonds of railroads, that principles which will apply at one time may not at another.

When, however, the nature of the business is such that basic industrial conditions bear an intimate relation to investment principles, as in the gas business, one can form a clear and reason-

ably adequate idea of what to choose and what to avoid when buying the bonds. But for the securities of manufacturing and industrial companies generally, investment principles degenerate into a series of caveats, until it seems as if the only dictum of common application is the caution *caveat emptor*, "let the buyer beware."

It is no reflection on the class of securities called Industrial Bonds that they do not receive treatment in these pages. The inference is merely as implied above, that the conditions governing their issuance are not sufficiently uniform for safe generalization. It is felt that this statement still applies to the bonds of electric light companies, although they are strictly of the Public Utility type. Therefore no chapter on Electric Light Bonds has been included. Telephone companies are now emerging from the construction stage of development into the investment stage; but until present corporate relationships are altered a frank discussion of Telephone Bonds is invidious discrimination. It is hoped that no other omissions are of sufficient importance to require explanation.

Whatever has been accomplished in this book is due in large measure to the unstinted cooperation of many people, both friends and strangers. But no one except the writer, and no firm, is responsible for any expression of opinion or statement which is open to dispute. Mr. Walter H. Lyon has generously fulfilled the offices of long friendship by reading much of the manuscript. In certain textual matters Mr. Thomas L. Cole has lent his ripe scholarship and critical taste. In matters of law Mr. Lyon and Mr. Alfred D. Chandler have given invaluable aid by criticisms and suggestions, and by the loan of published and unpublished material. Mr. Montgomery Rollins' veteran experience in bond mathematics, literature, and practice and his kindly interest have been freely drawn upon. Mr. Charles A. Hobbs has also materially improved the chapters on mathematics, particularly the work in logarithms. In relation to prices, the help of Mr. Wesley Steele and the Financial Graphic Company has been acknowledged in the text.

Mr. F. D. Warner has contributed to the chapter on Reclamation Issues from his knowledge as an engineer and financier of irrigation projects; and Mr. Rufus Coffin, by long dealing in obsolete securities, has been able to further the discussion of default and repudiation in its practical aspects.

Mr. Floyd Mundy and Mr. John Moody have gone over what has been said about the railroads, and Mr. Joseph Talbot, Vice President

PREFACE

v

of the National City Bank, has been of assistance in the preparation of the comments on bond prices in relation to credit, etc.

It is a matter of regret that ethics does not permit mention of those banking houses which have been called on to judge the correctness of the comments on the types of bonds in which they specialize.

Acknowledgment is due for permission to print the substance of a few of the writer's past and forthcoming contributions to *Moody's Magazine*, the *Rollins Magazine*, the *Banker's Magazine*, *Investments*, and the *Journal of Accountancy*.

The list of willing helpers might be indefinitely prolonged by mention of aid received from officials at Washington and in many other cities. Perhaps it will enliven this preface to say that in no case has an official of a community which shows a tendency to evade its just engagements made reply to letters of inquiry.

It has seemed best to keep the book as free as possible from footnotes; therefore a detailed acknowledgment of sources has not been possible. All the well-known financial periodicals have been drawn on, especially the *Commercial and Financial Chronicle*, without which much valuable matter would have remained inaccessible.

Errors undoubtedly will be found in this book, which has been produced in the scant leisure and amid the many distractions of an active business life. Criticisms and suggestions will be welcomed by the author and will be of value to him in a future revision of the text. At the same time he asks lenient judgment upon the faults of a pioneer work, in an extended field, by one whose daily occupation is to buy and sell rather than to expound investment securities.

LAWRENCE CHAMBERLAIN.

MONTCLAIR, N. J., June 1, 1911.

PREFACE TO THE THIRD EDITION

The changes that have been made in the revised text are, for the most part, corrections of clerical errors. Many references are brought up to date, particularly in the chapter on United States Bonds. From several quarters the author has been urged to add extended comments on types of bonds not treated as fully as circumstances warrant. He hopes to be able to do this before another printing.

CONTENTS

PART I

THE CHANNELS OF INVESTMENT

CHAPTER	PAGE
I. INTRODUCTORY	1
II. GAMBLING, SPECULATION, AND INVESTMENT	7
Gambling—Speculation—Investment—Speculation the Art: Investment the Science.	
III. THE ELEMENTS OF AN IDEAL INVESTMENT	18
Security of Principal—Stability of Income—Fair Income Return—Marketability—Value as Collateral—Tax-Exemption—Exemption from Care—Acceptable Duration—Acceptable Denomination—Potential Appreciation.	
IV. STOCKS VERSUS BONDS	29
Security of Principal—Stability of Income—Fair Income Return—Marketability—Hypothecary Value—Tax-Exemption—Freedom from Care—Acceptable Duration—Acceptable Denomination—Appreciation.	
V. THE CHANNELS OF INVESTMENT	88
Investments Classified by the Nature of the Interest—Investments Classified by the Contract of Redemption—Demand Loans—Optional Loans—Perpetual Loans—Time Loans.	
VI. BONDS VERSUS MORTGAGES	46
Security of Principal—Security as Affected by Guaranty—Security of Interest—Fair Income Return—Marketability—Hypothecary Value—Tax-Exemption—Freedom from Care—Acceptable Duration—Acceptable Denomination—Potential Appreciation—Conclusion.	
VII. LISTED VERSUS UNLISTED BONDS	62
Security—Negotiability—Current Versus Uncurrent Bonds—Hypothecary Value—Net Income—The System of Bond Houses as an Investment Exchange—The Unreliability of some Listed Quotations—Conclusion.	
VIII. THE CLASSIFICATION AND DESCRIPTION OF BONDS: ACCORDING TO THE CHARACTER OF THE OBLIGOR	69
The Four Schemes of Classification—Classification According to the Character of the Obligor.	

CHAPTER		PAGE
IX.	THE CLASSIFICATION AND DESCRIPTION OF BONDS: ACCORDING TO THE SECURITY FOR THE BONDS	72
	Simple Obligations—Corporate Debentures—Reinforced Obligations—Guaranty Security—Lien Security—Lien on Personalty—Lien on Realty—Mortgage Incidence—Mortgage Priority.	
X.	THE CLASSIFICATION AND DESCRIPTION OF BONDS: ACCORDING TO THE PURPOSE OR FUNCTION OF THE ISSUE	100
XI.	THE CLASSIFICATION AND DESCRIPTION OF BONDS: ACCORDING TO CONDITIONS ATTENDING PAYMENT OF INTEREST OR PRINCIPAL	105
	Division According to Payment of Interest—Division According to Payment of Principal—Division According to Maturity of Principal—Division According to Maturity as Affected by the Payor's Option—Division According to Maturity as Affected by the Payee's Option.	

PART II

CIVIL LOANS

XII.	UNITED STATES BONDS	115
	Net Yield—Causes of the Low Rate—History of the National Debt—The United States a Debt-Paying Nation—National Resources—A Home Market for National Loans—National Bank Demand—Price Fluctuations; Past and Future—Fluctuation in Times of War—Fluctuation in Time of Panic—Effect of Banking and Currency Measures Upon Prices—Desirability of United States Bonds for Investment—Details Concerning United States Bonds.	
XIII.	STATE BONDS: THE HISTORY OF STATE DEBT	122
	State Bonds in the Scheme of Classification—State Debt and Constitutional Law—Debts of the Commonwealths: Default and Repudiation—The First Repudiation Period—War-Time Repudiation and Default—The Second Repudiation Period—The Ultimate Cause of Repudiation.	
XIV.	STATE BONDS: THE ELEMENTS OF SECURITY	138
	SECURITY: INTANGIBLE ASSETS: The Gauge of State Credit—The Lesson from History—The Present Attitude of the States—Constitutional Debt-Restrictions—Statutory Debt-Restrictions and Corollary Acts—Significance of Recent Legal Decisions—Significance of Amount and Character of Present Funded Obligations. SECURITY: TANGIBLE ASSETS: The Tax Power—Taxable Wealth and Assessed Valuation—Equalized Valuation—Relation of Assessed Valuation to Real Valuation—Comparison of Valuations—The Components of Assessed Valuation—Other	

CONTENTS

ix

CHAPTER

PAGE

Items of Material Wealth—Population—Bank Statements—Off-sets of Liabilities. SECURITY AS VESTED IN THE BOND ISSUE: Amortization: Sinking Fund and Serial Repayment—Validity—Investment Value: Price and Income Yield—Market Factors—Bond Characteristics—Conclusion.

XV. COUNTY BONDS 159

The Municipal Division of Tax-Secured Bonds—Characteristics of the Municipal Division—The Economic Function of the County—The Range of Quality in County Loans. MATERIAL ASSETS: The County Statement—The Tax Power and Its Limitation—The Tax Rate—Assessed Valuation—Other Resources: Secondary Income—County Debt—The Real Debt of Municipal Counties—The Real Debt of Rural Counties—Contingent Debt; Quasi County Bonds—Debt Limitations. VALIDITY: The Partition and Annexation of Counties. GOOD FAITH: The Extent and Cause of County Repudiation—The Persistence of County Repudiation—Rural Versus Municipal Counties—Metropolitan Counties—Other County Bond Matters.

XVI. CITY AND TOWN BONDS: MUNICIPAL ASSETS 180

Municipal Corporations Proper—FINANCIAL COMPETENCY: MATERIAL ASSETS: The City Statement—The Tax Rate—The Tax Power—Specific Bond Taxes—The Tax Limitation—Assessed Valuation—The Basis of Assessed Valuation—Comparison of Assessed Valuations—The Components of Assessed Valuation—The Relation of Realty to Personalty—Other Resources; Secondary Income—Waterworks—Prior Lien and Mortgage Security—Population.

XVII. CITY AND TOWN BONDS: MUNICIPAL LIABILITIES 205

Municipal Debt—Contingent Debt—The Real Debt of Cities and Towns—Net Debt—Sinking Funds—Sinking Funds Versus Serial Repayment—The Redemption Privilege—Debt Limitations and Restrictions—The Referendum—Evasion of the Debt Limit.

XVIII. CITY AND TOWN BONDS: VALIDITY AND GOOD FAITH 225

Validity—The Causes of Illegality. REMEDIES OF INVALIDITY: Trust Company Supervision and Certification—State Certification of Validity—Validation of Issues by Courts and Legislatures—Estoppel and the Bond Recital—The Bond Attorney—Good Faith. OTHER MATTERS AFFECTING MUNICIPAL CREDIT: Price Factors—Tax Exemption.

XIX. THE BONDS OF TAX DISTRICTS 243

Origin—The District Statement—The District Tax—Special Assessment Bonds—Assessed Valuation—Secondary Resources—Mortgage Security—District Debt—Validity—Good Faith—Rural Versus Urban Districts—Metropolitan Districts—Conclusion.

PART III

CORPORATION LOANS

CHAPTER		PAGE
XX.	RAILROAD BONDS: PROPRIETORSHIP, MANAGEMENT, AND PLANT . CONTROL, PROPRIETORSHIP, AND MANAGEMENT: Management. PHYSICAL CHARACTERISTICS: Location—Mileage—The Character of the Traffic—The Character and Condition of the Equipment— Statistics of Operation.	252
XXI.	RAILROAD BONDS: EARNING POWER AND THE INCOME ACCOUNT . Operating Revenues—Operating Expenses—The Maintenance Items—Maintenance of Way—Maintenance of Equipment— Traffic, Transportation, and General Expenses—The Operating Ratio—Net Operating Revenue—Outside Operations—Total Net Revenue—Taxes Accrued—Operating Income—Other Income— Gross Corporate Income—Deductions from Gross Corporate In- come; Fixed Charges—Net Corporate Income—The Margin and Factor of Safety—Disposal of Net Corporate Income or Surplus.	263
XXII.	RAILROAD BONDS: VALUATION AND THE CAPITAL ACCOUNT . The Basis of Valuation—The Balance Sheet—Property Invest- ment—Capitalization—Net Capitalization—The Relation of In- come to Capital—The Relation of Funded Debt to Capitalization. BOND SECURITY AS AFFECTED BY PRIORITY OF CLAIM: The Relative Positions of the Various Bond Issues.	290
XXIII.	EQUIPMENT TRUST OBLIGATIONS Origin—Car Trust Certificates—Car Trust Bonds—The "Phila- delphia Plan"—Equipment Bonds or Notes. THE PRESENT LEGAL STATUS OF EQUIPMENT OBLIGATIONS; The Modern Trust Deed. THE FINANCIAL HISTORY OF EQUIPMENT TRUST OBLI- GATIONS: Depreciation and Serial Payment—The Margin of Safety—Variations in Form—Investment Return: Popular Pre- judice—Competitive Demand—Growth in Favor.	292
XXIV.	STEAMSHIP BONDS Blanket Mortgage Steamship Bonds—Equities—Insurance—Man- agement—"Single Boat Bonds"—Steamship Bonds of the Great Lakes—Their Record—Insurance—Earnings.	314
XXV.	STREET RAILWAY BONDS The Title—Variety of Kinds—History: the Urban Road—The Interurban—Interurban Centers—The Western Development: Competitive—The Eastern Development: Saturative—Electrifica- tion of Steam Roads—Distinction Between Steam and Electric Securities—The Investment Principal: Caveat Emptor—Overcap- italization—Penny-Wise Financing—The Franchise: Its Life— The Franchise: Its Character—Importance of Amortization—Im- portance of Territory Served—Investment Characteristics.	320

CONTENTS

xi

CHAPTER

PAGE

XXVI. GAS COMPANY BONDS	338
Importance of the Gas Industry—The Competition of Oil and Electricity—Economic Development—Fuel Gas—The Residuals—The Elements of Successful Operation—Importance of Size and Population Served—The Relation of Rates to Population—The Relation of Output to Population—The Decline in Rates—The Relation of Rates to Profits—Importance of Modern Management. THE BONDS: The Bondholder's Point of View—Security—The Effect of Hard Times—Investment Suggestions—Market and Yield.	
XXVII. WATER COMPANY BONDS	349
Conditions Affecting the Water Supply—The Question of Quality—Conditions Affecting the Water Demand—The Plant and the Business—Capitalization and Earnings—Management—Contracts and Franchises—Amortization—Water Bonds in Foreclosure.	
XXVIII. WATER-POWER COMPANY BONDS	357
Water-Power and Steam-Power Plants—The Bonds: Nature of the Security—Conditions Affecting the Power-Supply—The Drainage Area—The Storage Reservoir—The Power-Plant Construction—Conditions Affecting the Power Demand—The Power Market—Competition—Nature of the Contracts—Responsibility of the Lessees—The Bonds: Income Yield—Other Investment Advantages—The Operating Ratio—Appreciation—Marketability and Investment Value.	
XXIX. REAL ESTATE BONDS	366
The Two Kinds of Bonds—Real Estate Debentures—Security—Net Yield—Negotiability—Duration and Appreciation—Record and Future—Real Estate Mortgage Bonds—Security—Net Yield—Denomination—Negotiability—Duration—Leasehold Mortgage Bonds—Security—Eligibility for National Banks.	
XXX. TIMBER BONDS	375
The Lumber Business—The Origin of Timber Land Bonds—The Requirements of Mortgage and Deed of Trust—The Timber Lands—The Plant—The Timber—Timber Values—The Fire Hazard—Amortization—Management, History, and Earnings—Marketability and Income.	
XXXI. RECLAMATION ISSUES: IRRIGATION DISTRICT BONDS . . .	384
IRRIGATION BONDS: Early Weaknesses—Land and Water Rights and the Law—Federal Irrigation—The National Irrigation Act—Present-Day Irrigation Under State Law. IRRIGATION DISTRICT BONDS.	

CHAPTER	PAGE
XXXII. RECLAMATION ISSUES: PRIVATE PROJECT AND CAREY ACT BONDS	392
PRIVATE PROJECTS: Factors Making for Security—The Water Supply—The Water Title and the Water Rights—The Watered Land—The Land Title—The Scale of Private Projects. CAREY ACT PROJECTS: The Water Supply—The Water Title and the Water Rights—The Watered Land—The Land Title—The Scale of Carey Act Projects—Summary—Disadvantages—Market and Net Return—Future.	
XXXIII. RECLAMATION ISSUES: DRAINAGE AND LEVEE BONDS . . .	401
Scope and Character—Security—Net Return—Duration—Market—Future.	

PART IV

THE MATHEMATICS AND MOVEMENT OF BOND PRICES

XXXIV. THE MATHEMATICS OF BOND VALUES	405
Net Returns—Net Dividend Yield; Perpetual Securities—Net Interest Yield: Terminable Securities—Premium—Discount—Nominal Interest Rate—Duration—Interest Interval—The Interest Rate on the Sinking Fund—Inaccuracies in the Determination of the Bond Tables—The Derivation of the Bond Formulas—The First Formula—To Find the Present Worth of \$1 Principal—To Find the Present Worth of the Interest Payments or Coupons—A Second Bond Value Formula—The Application of the Bond Formulas—The Application of Bank Discount to Bond Transactions—The Difference Between Discount Price and Basis Price for Bonds Maturing Within Six Months, and the Total Ultimate Gain—To Discount a Bond Having Two or More Coupons Attached: i.e. Running Over Six Months—The Theoretical Gain by Buying at Discount Rather than at Basis, on a Bond Running Over Six Months, but not Bought on an Interest Date.	
XXXV. THE USE OF THE BOND TABLES	426
Accrued Interest—Bond Issues of One Fixed Duration—Un-tabulated Figures: Interpolation—Bond Issues of Serial Duration—Bonds of Optional Duration—Other Bond Tables.	
XXXVI. THE KEEPING OF INVESTMENT ACCOUNTS	444
The Basis of Investment Value—Book Value—Market Value. SCHEDULES OF AMORTIZATION AND ACCUMULATION: Schedules for Bonds Bought on Basis—Schedules for Bonds Bought at Price and Interest—Schedules for Bonds Maturing at Other than Regular Interest Dates—Schedules for Serial Bonds—Schedules for Redeemable Bonds.	

CONTENTS

xiii

CHAPTER

PAGE

XXXVII. THE FIFTY-YEAR COURSE OF BOND PRICES 455

A Bearing of Speculation Upon Investment Security—Security in Liquidation—Statistical Difficulties of Price Study—The Subjects of Price Study. THE DEVELOPMENT OF NATIONAL RESOURCES: The Charts of Population and Production—The Charts of Business and Per Capita Wealth—The Charts of Security Prices.

XXXVIII. BOND PRICES IN RELATION TO THE TRADE CYCLES 476

The 15-Year Charts—Approximate Synchronism of the Stock and Bond Price Movements—The Business Cycle—The Relation of Bond Prices to the Condition of Credit—The Curve of Bond Prices in Elevation and Depression—The Range of Stock and Bond Fluctuations—The Present Trend of Bond and Stock Prices.

XXXIX. THE FUTURE OF BOND PRICES 491

The Prospect of Advance—The Prospect of Decline—The Increasing Annual Output of Gold—The Quantity Theory of Money—The Equation of Price—Gold in the Price Equation—Velocity of Circulation—Commodities in the Price Equation—The Rapidity of Commodity Exchange—The Distribution of Money and Commodities—Local Causes for the Increase in Commodity Prices—Influences Tending Toward Lower Prices—Influences Tending Toward Gold Absorption—Influences Tending Toward Increase in Commodities—Conclusion as to the Future of Commodity Prices—The Relation of Commodity Prices to Bond Prices.

XL. THE BOND HOUSES 518

The Bond Business—The Functions of the Bond Houses—The Purchasing Function—The Advisory Function—The Banking Function—The Bond Houses as Fiscal Agents—The Selling Function—The Protective Function.

APPENDIX. THE GAMBLE IN "GOVERNMENTS" BY NATIONAL BANKS. BY W. H. LYON 528

INDEX 583

LIST OF CHARTS

	PAGE
I. THE GROWTH OF EQUITY IN SERIAL LOANS	309
II. THE CURVES OF INVESTMENT VALUE	449
III. THE POPULATION OF THE UNITED STATES	460
IV. THE PRODUCTION OF COTTON IN THE UNITED STATES	461
V. THE PRODUCTION OF CORN, WHEAT, AND OATS IN THE UNITED STATES	462
VI. THE PRODUCTION OF PETROLEUM IN THE UNITED STATES	463
VII. THE PRODUCTION OF COAL IN THE UNITED STATES	464
VIII. THE PRODUCTION OF IRON AND STEEL IN THE UNITED STATES	465
IX. THE PRODUCTION OF COPPER IN THE UNITED STATES	466
X. UNITED STATES IMPORTS AND EXPORTS OF MERCHANDISE	468
XI. THE BANK CLEARINGS OF NEW YORK AND OF THE UNITED STATES	469
XII. THE PER CAPITA WEALTH OF THE UNITED STATES	471
XIII. THE PRICES OF LISTED RAILROAD BONDS SINCE 1856	473
XIV. THE PRICES OF LISTED RAILROAD STOCKS SINCE 1856	474
XV. COMPARATIVE FLUCTUATIONS OF BONDS AND STOCKS, BY MONTHS, SINCE 1896	478
XVI. THE SYMMETRICALLY INVERSE VARIATION OF RAILROAD BOND PRICES AND THE RATIOS OF LOANS TO DEPOSITS—ALL NATIONAL BANKS	483
XVII. THE INDEX OF FUNDAMENTAL CONDITIONS IN THE UNITED STATES	486
XVIII. THE PRODUCTION OF GOLD IN THE UNITED STATES AND IN THE WORLD SINCE 1857	493
XIX. COMMODITY PRICES IN THE UNITED STATES SINCE 1860	494

PART I
THE CHANNELS OF INVESTMENT
CHAPTER I
INTRODUCTORY

1. Property, as the possession of civilized men, is fundamentally divided into two kinds: land, with whatever is permanently attached to it, and movable goods and chattels. The relative importance which these two kinds of property have held in the estimation of men has varied from age to age and has differed among communities according to the degree of civilization each has attained.

As man cultivates the handicrafts and arts and develops a commerce in movable possessions, and as the ultimate dependence upon the soil becomes less and less obvious, the second form of property increases in relative importance, and "personalty," to use the more modern and comprehensive term, ranks with "realty."

2. Moreover there has been an important and interesting development of personalty itself. Rights and franchises and other immaterial forms of property have obtained recognition and confidence as stable and permanent possessions in modern systems of law and order built upon governmental and public faith.

With man's growth of faith in man, and with the necessity for increased facilities of exchange, has arisen the use of symbols and certificates of possession for the material and the intangible things possessed.

3. This development in the forms of personal property used as media of exchange is historically recorded in the etymology of the English language.

Pecuniary and *peculation* (Latin *pecus*, cattle) carry us back to the agrarian age, when beasts of the field were the medium of exchange. *Expense* (Latin *expendere*, to weigh out) suggests a more settled period when currency, like commodities, was measured with scales, rather than accepted at face value, or denomination. Another advance brings us to *money* (Latin *moneta*, a mint) which suggests intrinsic value reinforced by civil guaranty. A higher form

of commercial development is reached when not the material thing itself, but its paper certificate of ownership, of no intrinsic value, passes without question from hand to hand as an accepted symbol of the wealth it represents. Security in this stage is no longer physical possession of wealth, but the faith of the community in its system of political and commercial credit. A typical form of this representative personal property is the *bond* (cf. Old French *bonde*, and Middle English *band*, a bond, a tie).

4. The bond seems to violate the rule of historical inheritance. Although many if not most of the elements of modern civilization are traceable to Greek and Roman antecedents, or at least to origins antedating the Christian era, bonds for investment, as we understand them, do not seem to be derived from antiquity. In fact it is not until the latter part of the Twelfth Century that we meet with them. The Venetians, at that time bankers to the world, used bonds that were in every essential analogous to our civil loans. They were direct obligations of the state, interest-bearing, redeemable and negotiable. Venice's system of certificated loans gradually spread over France and the Low Countries; and from the Fifteenth Century onward, instruments somewhat analogous to our corporation and real estate bonds appeared in other parts of Western Continental Europe.

5. We should take some pride, however, in the fact that it was reserved for us of the New World to develop, to the full, the latent capabilities of the sealed instrument. A security still virtually unknown to English common law, the modern negotiable bond, was conceived in the peculiar necessities of early American finance and bravely and wisely nurtured by the federal courts. To what stature it has already attained will be seen from the observations of the first few chapters of this book. Therein an effort has been made to seize the fundamental principles of investment and to show how aptly bonds conform to them. The importance of bonds as a channel of investment is also illustrated by the extension of jurisprudence within the past half-century, as municipal bond law, to cover the exigencies arising from this new mode of financing.

6. If bonds play such an important part in latter-day investment, and particularly in American investment, it ill becomes us to leave the principles of bond investment, as we have left so many other financial principles, to the dissertations of French economists. The only extended attempt we know of, worth mentioning as a scholarly contribution to the subject of bond finance, is some collected arti-

cles from the *Journal* of the American Academy of Political and Social Science. But the merit of these articles is very unequal, and they are not ordinate parts of a general system. Indeed the more one thinks of it the more incredible appears the supine attitude of American bankers, business men, and teachers, toward the cultivation of this very useful and honorable field of thought.

7. From a strictly academic standpoint the development of bond investment as a science offers exceptional attractions. Unexamined material of all kinds is to be had in plenty. The method of necessity must be strictly inductive, for the projection of enterprise by funded debt is still largely experimental, and our habits of thought upon it have not yet become formulated and regulated by authority, for no authority exists. It is true there is little danger of gross misinformation, or of misinformation at all, from text-books, for there are almost no texts.¹ Moreover, the scientific study of bond investment implicates a sufficient number of corollary disciplines, such as banking, statistics, accounting, civil government, and law, to allow association in studies with courses already established in every university curriculum.

8. A stronger appeal than that to our American universities, already overburdened with courses of utility, may be made to those who, next to the investing public, have most at stake, the American investment bankers themselves. That, as a class, they should rest content with anything short of the highest possible technical investigation and understanding of the business to which their capital is intrusted, is something to be wondered at. But the fact remains. And it is not universally the largest houses, doing a regular international business, which have best conserved the true interests of bond investment by the character of the investigations, or the choice of securities for which they have stood sponsors.

9. If anything is said in this place, seemingly in disparagement of the bond fraternity, of which the author is a member, let it be read in the light of the closing pages on *The Bond Houses*; but we should either give up the idea of bond dealing as a profession, or else contribute to, and cordially welcome a *science* of bond investment. There can be no profession without a science, for surely science is the one characteristic which distinguishes a profession

¹ There are no texts, unless one may call the contributions to the *Journal* of the Academy a text, and the well-balanced and useful introductory book entitled *Investment Bonds*, by Frederick Lownhaupt, New York, 1908.

from a trade. There is altogether too much that is superficial about bond selling.

10. Bond selling is too largely undertaken in a haphazard manner. It is true that there are good salesmen who have little knowledge of bonds; but it is also true, within the writer's observation, that, other things being equal, the well-informed and trained bond man makes a more effective and successful salesman than one who lacks understanding of the securities he offers. The responsibility for the lack of preparedness rests less with the salesman than with the bond house which sends him out without furnishing him with means to a proper understanding of the business committed to him.

11. Salesmanship, however, is only one-half of the battle. What a house sells it first must buy. There is a saying that a bond well bought is already half sold. As an economic function the buying of bonds has made much greater progress toward perfection than the selling. This is particularly true of municipal issues, because in each case, the problems that confront the purchaser are, for the most part, uniform in character. The chief of these problems are those that concern legality and like questions. Every large house has one or more bond attorneys who bring professional minds to the task of investigation before them. In purchasing corporation issues the services of experts in the field of the corporation's activities are secured, and their judgments, to a degree, are the basis of the purchase. In both cases the influence of special equipment and intellectual training tends to permeate all the other elements of the functions. A reading of the chapters on *State Bonds*, especially the closing paragraph of the second chapter, should convince any one of the necessity of even more scientific bond buying,—as well as of scientific bond selling,—than we have had in past years.

12. But of all interested, the investing public is most vitally concerned in the elevation of bond investment to an applied science; for the public, particularly the American public, is the ultimate repository for the issues of our corporations, both civil and private. In the past the burden of our repudiations and defaults has fallen most heavily upon Europe. England, the Netherlands, and to some extent France, have suffered more than we by the follies and delinquencies of our states, municipalities, and railroad and banking companies. It is Europe, principally, which has set us upon our feet, not once, but repeatedly, by purchasing our credits with its surplusage. But henceforth this is not to be. At anything like the present rate of enlargement, we shall soon have to absorb all but

a small portion of our own municipal and corporate indebtedness. Europe, even now looking to other continents, can be counted on to take only a tithe. If ever again over a thousand million dollars of our loans come due and remain unpaid, it will be ourselves we shall have cheated, and not our trustful neighbors of the Old World.

13. Therefore we must institute a sound and thoroughgoing methodology of debt-creation, bond buying, and bond selling. In the ultimate analysis the development of a bond science depends primarily upon the statistical department of the banking houses. Too much emphasis cannot be placed by a broker upon his statistician, who should be a well-equipped and properly compensated master-thinker, and not, as is too often the case, an underpaid clerk. With a scientific basis in the statistician the buyer would be less the victim of the unforeseen and unexpected and the salesman would not go on the road trained in address, primed with the latest gossip of railroad melon-cutting, and the talking points of his leading bonds, really sincere and frank in interpreting the information on his circulars, but for the most part utterly unable to explain or comprehend the essential investment qualities in the bonds he offers,—unable to tell, for instance, whether there is a difference between a bond and note, or between a Car Trust Certificate and an Equipment Bond. Think of a medical man who could not distinguish the scapula from the clavicle! Salesmanship, so represented, is not a profession but a trade. The dignity of it is barely saved by the high average of general intelligence among bond salesmen, and by the high plane of their business ethics.

14. What may be said of the bond investor? In absolute ignorance of the very titles of some classes of bonds, unfamiliar with bond law, bond history, and bond practice, unable generally to analyze a corporation's financial statement, and almost never the statement of a municipality, he is too often at the mercy and discretion of salesmen who are, perhaps, only slightly more conversant with bonds than he. In many instances, considering the usual difference in age, business experience, and practical wisdom, the salesman is less prepared than the client to guide investment money into proper channels. Thus a statement of the principles of bond investment within the limits of one volume, ought to be of great service to bond buyers.

15. A most important service that can be rendered to all by an attempt to define and codify the principles of investment is to make

general the knowledge of what tends toward conservatism in finance. There never was a civilized country which needed such a service more than ours forty years ago. It is doubtful whether there are many which need it as much as we to-day. We are piling up our municipal debts at an extravagant rate. And the seriousness of the situation is that the East is the worst transgressor. New York, the banking center of the western world, has increased its population in the past ten years 39 per cent. Allowing for the 1903 change of basis, it has increased its assessed valuation about 32 per cent. But it has increased its budgetary appropriations for municipal purposes (as distinguished from county and state purposes) over 100 per cent., and its "net funded indebtedness" by about 178 per cent., and its interest charges over 115 per cent., or from 12 per cent. of the total budget to about 17 per cent. Men have disagreed by millions as to New York City's actual debt.

16. Making due allowances for the self-supporting nature of many of the recent loans,¹ the same spirit that brought about this state of affairs, bankrupted the West and South seventy years ago, and again thirty-five years ago. Yet there is no organized opposition from New York bankers to a continuance of this debt-creating policy. In Massachusetts, of all states by far the most heavily in debt, earnest and public-spirited citizens who have made a profound study of local municipal debts, are receiving, not encouragement nor indifference, but actual opposition, sometimes even from bankers, in their endeavors to better the fiscal conditions now prevailing. The time has come, says Mr. A. D. Chandler, in *The Brookline Chronicle*, to insist on throwing aside any veil that covers the full amount of a municipality's debt. Any one familiar with the facts who does not do so, exposes a town to a wrong and an injury. "The present Finance Commission in Boston has recognized the necessity of refusing to be befogged by any such veil. Brookline's debt, instead of being only about \$1,381,330, as given officially in obedience to an archaic habit, is really about \$4,894,908, according to the computations furnished by the Town Accountant."

These illustrations of what remains to be done in the most conservative investment field, the municipal, suffice to show the need of an "exact science" of bond finance and bond investment, and suggest the relief which would come to overburdened communities should the principles of such a science be common knowledge among them.

¹ 1909.

CHAPTER II

GAMBLING, SPECULATION, AND INVESTMENT

17. "Writing a book," says somebody, "is very much like flying a kite: it is pretty plain sailing after you once get it off the ground and started." We have to do, in this work, with the principles governing bond investment in America. Granted the premises and all things follow in due course; but first it is necessary to secure acquiescence in the premises, i.e. as to the nature of investment; how investment is to be distinguished from speculation; and the position in the scheme which is occupied by bonds. From that we deal more generally with concrete and demonstrable facts, and the chances for differences of opinion are fewer.

18. Many would divide the efforts by which money is made to earn other money into three kinds: gambling, speculation, and investment. It would be well, if possible, to come to some general agreement as to the division lines, for then much blind legislation and several economic fallacies would be done away.

19. **Gambling.** Simon-pure gambling, we take it, is indulged in when one risks money or any other form of wealth on any event over which he has absolutely no control nor foreknowledge. Matching coins or shaking dice, fairly, is pure gambling. But frequenters of poolrooms and gambling halls will aver that so-and-so is almost invariably lucky in his plays of the sort. Study of the few men of this repute we have known leads us to the conclusion that their winnings are due to the observance of certain mathematical laws (e.g. the law of probabilities) and to their superior insight into human nature. Consciously or unconsciously they will stop their losses and let their profits run; or they will double their stakes after each loss until a winning stroke recoups them, and then they will find cause to withdraw from the play or else return to the original smaller stake.

He is a rash man, however, who limits his definition of gambling to operations dependent on pure chance for their success. Betting on races and games is gambling, even when conditions are carefully studied,—unless we revise the dictionaries and the language. One

may use intelligence as it is ordinarily and properly understood; and, if the intelligence is of sufficiently high order of its kind a living may be got from it which, for all we know, may not be so precarious as some people suppose.

20. *Speculation.* Now to speculate, say the dictionaries, is "to make a purchase that involves a risk of loss, but also offers a chance of considerable profit: to make an outlay in the hope of probable gain." It is hard to see in what respect this definition would not do equally well for gambling as it is ordinarily conducted, except, maybe, for the word "probable." Strictly according to the definition, at the race-track one purchases of a bookmaker the right to demand a certain sum of the bookmaker providing one's opinion is verified that a certain horse has at the time of the race greater speed for the given distance, in the hands of the given jockey or driver, than any other horses entered in that race under their jockies or drivers, as the case may be.

The dictionary definition of speculation does not define, to the exclusion of gambling; but it is not sufficiently inclusive if it did. A novelist contracts with a periodical to supply it with a certain number of stories during the ensuing year; and a forfeit is stipulated if the writer defaults. These stories, we will suppose, have not yet been written. The novelist is selling something he does not possess but hopes to make. In the phrase of the market place he is selling "short," an operation peculiar to speculative dealings, but not included in the definition above. Both parties to the contract are "dealing in futures," a form of transaction native in its accepted sense to gambling and speculation, but foreign to investment. It is conceivable that if by reason of illness or prior engagements the novelist took great chances of not being able to fulfil this contract, he might justly be accused of gambling.

21. The distinction, therefore, between gambling and speculation is *ethical* rather than *economic*. *Both gambling and speculation are dealing in futures; and the difference between them is the difference in motive, and in the degree and character of the risk involved in pursuit of the gain.*

There are innumerable ways of saying the same thing: gambling is undertaken in the spirit of sport; speculation in the spirit of business. In gambling the attraction of the uncertainty is the leading motive; in speculation, the desire for gain.

22. By the usage of our English speech there is a form of business activity commonly called speculation, which, according to the

distinction drawn above, should be called gambling: namely, the purchase and sale of stocks, and certificates representing commodities, on a very narrow margin of equity, and without intelligent opinion as to future values. Since gambling of this sort has a kind of usefulness in "creating a market," and assuming (even though unconsciously) the risk that would otherwise be borne by producer and consumer, it is called speculation, *honoris causa*, for its economic service. The assumption of risk with benefit to the community is a speculative function.

23. **Investment.** Just as the gradation from gambling to speculation is imperceptible, and there is no hard and fast line of demarcation, so speculation, as it avoids chance to a greater degree, in pursuit of more certain, if possibly more modest opportunities for gain, graduates imperceptibly into investment. Likewise if it is a fair contention that gambling is a lower order of activity than speculation, since it seeks to acquire something which has not been earned, and in the operation produces no new wealth, and does not more favorably distribute wealth which exists, then investment is a higher order of business activity than speculation; for chance is eliminated as nearly as possible, and all operations are conducted in compliance with natural laws, and there is a nicer relation between the labor and the reward, and there is less loss or waste if indeed there may be less gain. Furthermore, investment more surely and permanently creates new wealth.

24. Apropos, now, of the relative return from speculation and investment, what proof is there that the common opinion is correct, that the current rewards from speculation are greater than from investment? Are dividend returns greater than interest returns? Dividend returns are not the only profits from speculation, and par value is not market value. But this much we know: that railway bond interest in this country is between two and a half and three times railway stock dividends, and yet the funded debt is only slightly in excess of share capitalization. General business is now the commonest form of speculation. Proprietors expect and receive, to be sure, *when successful*, higher returns than lenders of money receive. But what proportion of business enterprises is successful? The commercial agencies tell us that more than one per cent., on the average, of all business concerns in the United States fail every year. A financial writer and editor, whose opinions carry as much weight in Wall Street as those of any other student of finance, was recently asked by a friend of the author whether he

10 GAMBLING, SPECULATION, AND INVESTMENT

thought in the long run speculation or investment yielded the greater returns. His reply, in part, was:

"I know of no data on the question of the comparative results of investment and speculation. The results would differ so much with different individuals that it would seem impossible to gather any statistics on the subject.

"My own belief is that there can be no doubt whatever that larger gains are to be made by investments than by speculation so far as the non-professional is concerned."

The story of the hare and the tortoise is not without point. Investment mills grind slowly, but they grind exceeding sure.

25. Leaving now any but business considerations,—when a man has acquired any means above his wants, unless he wrap the surplus up and bury it in a napkin, he is at the necessity of making a choice between the speculation and the investment of it. Two sets of influences will bear upon this choice: his temperament and his environment. The acquisitive man will have in mind the small but certain rental which his money can always command. He is the investor *par excellence*, and his savings, literally, control the destinies of nations. The daring and less patient man will seek a speculation with its superior opportunities for the employment of his creative powers, and for consequent greater possibility of gain.

The play of circumstances is equally effective, and will turn almost all men from the one to the other of the two modes of money-getting. If we remember that this act of choosing is generally an unconscious matter, and is going on all the time for all who labor and save, we have the best possible viewpoint for contemplating the eternal round of choices which goes to the making of business cycles. That is to say, not only may men be classified as individually and natively either speculators or investors, but collectively they are first the one, then the other. When, for a period, crops and gold have been abundant, and prices for materials and labor have risen, and credit may be had almost for the asking, the spirit of speculation becomes general and well-nigh irresistible. The storekeeper lays in a double stock, the clerk buys twopenny mining shares, and the banker loans too freely on collateral. Then when, according to the old figure, "the bubble bursts" and optimism gives way to fear, there comes the reaction: for a time people will only hoard; but when they make commitments again, the choices are largely for investment.

26. Fortunate, then, are the very few who are qualified to be both investors and speculators of their surplus funds. These men will liquidate their commitments at the flood tide and *invest* in loans, subject to their call, which at such times are almost as profitable as the better liquid speculative assets, such as dividend-paying stocks. Then when the collapse comes they are prepared to renew their investments in short or long time loans until conditions warrant the withdrawal of these funds for the assumption of speculative risks again.

27. **Speculation the Art: Investment the Science.** There is nothing invidious in a comparison of investment and speculation. Each is necessary to the other, and both to the conduct of business. There is more or less speculation in every investment, and investment in every speculation. But in the large, investment is a science, and speculation is an art. In a sense, therefore, it is inappropriate to speak of "the art of investment," or "the science of speculation." To the extent that investment is a science it is reducible to definition, code, and law, and books may with profit be written about it; but in so far as speculation is an art and distinguishable from investment, it must remain a mystery to those who do not feel its spirit, or else be learned in the occult ways that any art is learned. Successful speculation cannot be learned from books. It is in accord with our thesis of speculation as an art and of investment as a science that successful speculation is a high order of finance, but unsuccessful speculation is gambling. This riddle is not hard to solve.

28. As art precedes science in the development of a race, so speculation precedes investment. Nothing venture, nothing have,—to invest. The Pharaohs dealt in grain futures, and perhaps Joseph explained to the King a phase of the cycle theory of speculation when he interpreted the dream of the seven well-favored kine consumed by the seven ill-favored. It was well for Egypt that for the next seven years Pharaoh was bullish on all foodstuffs and bought 20 per cent. of the country's supply. It never matters what are the commodities dealt in, speculation takes the burden of risk from the shoulders of both producer and consumer of any kind of product, and, when successful in carrying the load, receives reward commensurate with the service rendered; for, to repeat, by whatever name speculation may be called, it always has had, and always will have, an indispensable function to perform in the world's economy.

12 GAMBLING, SPECULATION, AND INVESTMENT

29. Since the assumption of risk is a necessary and highly beneficial service when performed by those qualified to undertake it, the distinction between speculation and investment is *not* primarily ethical. *Speculation and investment are actuated by the same motive: desire for gain, and the difference between them is the difference in degree of risk willing to be assumed. This risk finds its most patent expression in the ratio of current return expected of the capital.*

CHAPTER III

THE ELEMENTS OF AN IDEAL INVESTMENT

30. **Security of Principal.** It follows from the distinctions drawn in the preceding chapter that the chief requisite of a perfect investment is a maximum of security for the invested principal. If it is certain, humanly speaking, that the principal will be returned when demanded, or at a time agreed upon, or that it can be converted at will, or at a fixed time, into some equivalent form of wealth, equal in value and equally satisfactory to the lender, then the principal is secure.

31. Now there is one, and only one, word in the language to designate the employment of funds in accord with these requirements. It is the word *loan*.¹ Contracts which are essentially purchases do not ordinarily assure to the buyer revenue from, or the return of his expenditure. No unguaranteed stock, for instance, however good, can assure a future realization equal, at a set time, to the purchase price.² This is reasoning by the book, to be sure,—arguing in a vacuum,—but it is only by analyzing investment into its primary elements that we can attain a sound and enduring investment practice.

32. The moment we are confronted with the word *loan* we realize how few, in truth, are the classes of investment that fulfil requirements. The purchase of real estate is not investment in the strict sense. The purchase of bonds, on the other hand, *is* investment, for the purchase is in reality a loan and must be paid. The purchase of British consols, of irredeemable state “loans,” and of the perpetual “loans” of continental governments, or of the ordinary town warrants, sometimes, is not a loan, and therefore not an investment in this sense, since there can be no loan where there is not

¹ In the strictest sense, then, *investment* implies divesting one's self of the possession and control of one's assets and granting such possession and control to another” (Sprague: *The Accountancy of Investment*,” p. 13).

² “The essence of strict investment is vicarious earning, a share of the gain not dependent on the fortunes of the handler” (Ibid.).

a promise to pay the principal, and there is no true promise to pay when there is no payment time appointed. On the other hand, deposits in national, state, private, and savings banks, and in trust companies, are pure investments, when interest is allowed, since they are loans for a consideration,—loans which there is a written or implied promise to pay on demand or at a fixed time, and also certain forms of insurance policies which contract to return the principal cost, after a certain time and under certain conditions. The consideration for the loan in these latter cases may be taken to be, not only in interest accruing, or annual participation interest, but possibly even the fact of insurance itself.

It is not necessary to state that many instances of expenditure that theoretically come under the head of speculation are safer than some instances of investment; but nevertheless the fact remains that *every class of pure investment, such as bonds and mortgages and bank deposits, is safer than any class of speculation, such as stocks, real estate, and commodities.*

In fine, therefore, the perfect investment is a promise to pay; it is always a loan.

33. There are, however, investments that meet all the demands mentioned and yet fall short of being ideal for certain purposes. Some issues of bonds run well into the twenty-first century. From the standpoint of present generations they are hardly more available in theory than perpetual loans. As loans their liquidation value (security apart) is dependent upon current rates for money, rather than upon the fact that at some future time 100 per cent. of their face value must be repaid for them. The shorter the life of the loan the more surely does the face value govern the current value. This is why national banks, which must at all times be prepared to liquidate a large part of their investments, choose commercial paper and short term notes and bonds.

But on the other hand, for convenience in complying with the laws, or for economic reasons, interminable, or very long loans have their place in finance, or else the school funds of some of the Western states would not be invested in them. Then too, testamentary trusts which the founders intended to continue as long as our laws of inheritance and entail will permit, are best fulfilled, ordinarily, when left in the form of investments that will not mature at an early date. In such investments a fixed and regular income is most desired. The principal will perhaps go to beneficiaries yet unborn, for whom there is less solicitude.

34. Stability of Income. An investment, therefore, to be ideal, must secure to the lender of capital a fixed rental or income for the use of it. This sum, as usually paid in regular serial instalments, is commonly called interest. When the loan is to be brief it may be paid at once out of the capital borrowed. It is then called discount. Since it is in hand, the rental, or discount, is absolutely safe.

35. Ideally, interest should be as inviolable as principal, and certain to be paid promptly, at regular intervals, and in predetermined amounts. This seems very trite, but thousands of investors have been misled by the deception of the title into buying "income bonds," simply because they did not realize that security of principal and stability of income do not imply each other.

Strange as it may seem, there is no direct relation between these two investment qualities. Mortgages, which rank with bonds as to security of principal, give far less assurance of uniform and prompt returns. The whole matter of interest return is given fuller treatment in the chapter which compares these two channels of investment. Improved business property in American cities of size has a steady and usually increasing value in liquidation; but the returns from any one parcel, in which the risk is not divided by rentals from many tenants, are comparatively irregular and dilatory. In a property of four tenancies, or less, a single vacancy causes a loss in income of from 25 to 100 per cent.

There is a hospital in New York State bonded for about 40 per cent. of its cost. It is not yet earning any income. The security for the principal of these bonds is at present the marketable value of the land and buildings. The payment of the interest but not of the principal is guaranteed by a group of prominent citizens of the town. In this case, security of principal and interest are not one and the same; and the security of the principal and the promptness of its payment are, in a sense, not one and the same.

We shall have something to say later about Residuary Estate Bonds. The principal is fortified by collateral lien on beneficiary rights. The interest is secured by annuity on the life of the issuer of the bond, payable on his demise to the owner of the bond for the remainder of the term of the bond. Here again principal and interest have separate and distinct reinforcement.

Uniformity and promptness of return are greatest in annuity insurance and in bonds; promptness without uniformity, in deposits with trust companies and all kinds of banks. If stocks and

unimproved property are classed with investments it must be acknowledged that the return from them is exceedingly irregular, and in the majority of cases amounts to nothing.¹

36. There is another situation in which Fixity of Income interests us: What remedy have we in default of the income? Obviously none except when investments are strictly loans. Default in the interest of mortgages and mortgage bonds renders the principal due, and thereby furnishes the best remedy: foreclosure of the property secured. Default of payment in annuities, in interest on corporation debentures, *ipso facto* renders the company insolvent and subject to whatever remedy may be had in bankruptcy proceedings.

It is a curious fact, not so well known as it should be, that default in the interest of municipal bonds (in most states merely debentures) does not mature the principal; and since bankruptcy proceedings may not be undertaken against municipalities, there is no action to recover except on the defaulted coupons.²

Guaranteed and preferred stocks (and of preferred stocks especially cumulative preferred) have better standing than other corporate shares³ as regards fixity of income. But this superior standing is affected by, and limited to, the period for which dividends on the stock are guaranteed, in the one case, and to the duration of the stock, if it is callable, in the other. Owing to the peculiar conditions under which stocks of subsidiary corporations come to be guaranteed there is great probability that at the expiration of the guaranty a renewal of it will be brought about only by the lowering of the interest rate. Preferred stocks sometimes share with common stocks in enlarged distributions over the nominal rate. Departure in this direction from fixed income is certainly no objection. Preferred stocks, on which dividends must be paid when earned, and

¹ The return from even American railroad stocks is disconcerting. In 1892 any dividends at all were paid on only 40 per cent.; in 1897 on 30 per cent.; in 1903 on 56 per cent. For the same years interest was paid on 85 per cent., 84 per cent., and 96 per cent., respectively, of all bonds.

² No class of bonds is less understood than municipals. Granted that they are the very safest of investments, it is remarkable what solemn nonsense is written about them over the signature of bankers who make a specialty of their sale;—to say nothing of men who write about financial matters from the outside.

³ "Corporate stock" of municipalities (a term borrowed from England) does not differ in essentials from municipal bonds.

which may be retired after a certain period, have much the same investment position as income bonds.

37. For loans of long duration there is involved in this matter of fixity of interest a more profound question than mere certainty and regularity of payments,—and that is the future purchasing power of the money in which interest is usually payable. If dealing in long loans it is well to know that the certificate of indebtedness given by the borrower calls for payment of interest and principal “in gold coin of the United States of the present standard of weight and fineness” rather than in mere “lawful money of the United States,” however synonymous these two terms may now seem; but it would be better if the lender by any possible system of accounting could exact interest of so much per cent. “in present purchasing power of the necessities of life.” By such an impossible provision investment would rid itself of one ever-present speculative element that becomes increasingly important the longer the life of the loan.

38. *Fair Income Return.* We have implied in the preceding chapter that, all other things being equal, the income return varies inversely as the security. But all other things are not equal—particularly knowledge on the part of the investor of the relative merits of various classes of securities, and knowledge of the effect of laws governing the investment of savings and trust funds, and of other similar artificial conditions affecting the market price of securities. It is therefore possible, by studies such as this undertaken for bonds, to make use of more intimate knowledge, and to gain thereby in income return. This we shall again suggest in our remarks about District Bonds, and Equipment Bonds, and elsewhere.

39. Whatever the form of investment in which one is interested, there are certain propositions into which one's money is invited, that by almost common consent return less than even “perfect” security has a right to command. This is true of much central business property. The speculative prospect, or sentimental considerations, satisfy investors in such property. In business property particularly, presumptive future rental power is capitalized. Insurance, which (to use a Hibernicism) is composed of insurance and investment, yields less than pure investment, for the reason that nearly all insurance companies figure the return on endowments at 3 per cent. But the great majority of investment propositions have the opposite fault: they make such large returns as

clearly to indicate that something has been sacrificed, generally security, to obtain the given rate.

Turning now to bonds, it is evident that the income from our national loans, even the insular issues, does not represent a fair return upon what most people consider the best security: the credit of the Federal Government. It is equally evident that when a shortly maturing obligation of a great railroad system in the United States sells at a price to yield 15 per cent. there is grave doubt in the minds of investors as to whether the obligation will be paid at maturity. Somewhere, therefore, between 2 and 15 per cent. lies the income value of absolutely secure bonds.

The higher grades of municipal bonds in this country are now selling at prices to net from 3.50 to 4.25 per cent. This variation of 3-4 per cent. cannot represent that amount of variation in security; but rather it represents, to a great degree, the variation in intensity of competitive demand due to market factors, such as exemption from tax, savings bank and insurance company demand, etc., factors treated in greater fullness in the chapters on *City and Town Bonds*.

40. Shall it be said that the bonds of Spokane, Washington, represent with approximate correctness the fair rental value of money destined for pure investment in bonds? Spokane has a clean record for municipal good faith; it is the center of a settled and very fertile agricultural district, is well built, and in good financial condition, and is now well beyond 75,000 in population, and therefore becoming rapidly metropolitan in character. A minor drawback is that its obligations lack the seasoning a century of corporate existence gives. The consensus of experienced opinion is that Spokane's bonds are certain to be paid—as things go in this world. Since, however, Spokane is a Far Western city, and its debt considerably more than 5 per cent. of its assessed valuation, it is not a legal investment for the savings banks (in some of the Eastern states) that strongly incline toward the purchase of municipal bonds; and for the same reasons it is not particularly attractive to prejudiced and insular Eastern investors. The demand, then, for Spokane bonds is not keenly competitive, but perhaps fairly normal, and comes from those who weigh investments judicially and decide upon intrinsic merit.

If, then, the obligations of Spokane, which at this time sell upon a 4.25 per cent. basis or thereabouts, represent the rental value of pure investment in bonds, we have a standard of Fair Income

Return; and if as individual investors, we accept a greater return, it must be either at the sacrifice of security, or because of investment knowledge or opportunities superior to those of bond buyers in general. Very probably we have superior opportunities.

Supposing that 4.25 per cent. represents the present rental value of money to be placed in bonds as a class, the same gauge may be worthless in 6 months, and may not apply now to other classes of investment. Although $3\frac{1}{2}$ to 4 per cent. is the rental value of a dollar in most savings banks at present, most people would believe these rates too low for real estate mortgages.

Nevertheless, no matter how elusive the standard of fair return upon pure investment, *it always exists*, and we buy foolishly and unscientifically when we neglect to satisfy ourselves by what right or opportunity we obtain a greater income from our investments than we have set for a standard, since generally it is by the assumption of risk.

41. **Marketability.** But let there be no misunderstanding. It is possible to get a greater income return than the standard without loss in security, if one will sacrifice other advantages. It is the old law of compensation at work. If, for instance, one will be satisfied with a bond less widely known than Spokane debentures, yet with equal security, there can be a gain in return. In such a case one may not be able to sell again with such facility:—marketability may be impaired for income. But most bond buyers demand a higher degree of marketability than they really need. The cause of this error is the pernicious confusion, in the minds of investors, of the speculative and investment functions of the stock exchanges. The generally ill-advised demand for “listed” bonds, from private investors with poorly digested knowledge of their own needs, is one of the most exasperating trials that investment houses have to contend with. The very phrase used betrays the difficulty. What they mean is “active” bonds; quite another thing.

42. And yet bonds as a class are the most readily salable of all the forms of pure investment in which the loan takes the form of a contract of sale. Mortgages are much less easily convertible. Insurance contracts are quick and certain in disposal, but always at the sacrifice of principal.

43. But of all sorts of investments bank deposits are the most quickly convertible, and in these is exemplified most clearly the

law of compensation. For the privilege of withdrawal the lender of funds has to pay dearly: perhaps 25 to 50 per cent. of his income return. This is marketability at the expense of income. But only when the principal is payable on demand, as in bank deposits, is one fortified with funds to meet at his best unexpected calls for money. In savings banks, which have the privilege of withholding depositors' money for thirty or sixty days, the compensation for this less dependable convertibility is a higher interest rate. And so the law will be found to work throughout the field of investment, quite independent of all considerations of security: *the price of convertibility is lessened income.*

44. However, convertibility may be attained in another way without such serious impairment of income, if one's invested capital is represented by an instrument for which there is a constant demand. Toward this end active speculation is in some respects an aid to investment. But great speculative activity means great elasticity of quotations, which may offset the good effects of a constant market by withdrawing the opportunity to sell, at all times, at or near the purchase price. This is marketability, or convertibility, at the expense of principal. An ideal market will not only be quick but steady. An ideal investment market does not necessarily offer chances for considerable gain, but it should be an influence against considerable loss. The market for United States bonds has been for some time of such a sort, and promises to be, during the continuance of present national banking laws,—at the expense of income.

45. A good market may be "wide" or "narrow." Properties or securities offered in quantity can be quickly converted in a wide market without materially lowering current quotations, providing the market is not only wide but "with a good undertone," i.e. supported by good demand at slightly lower than current quotations. A wide market may, however, be inactive and weak, and a narrow market active and strong. The ideal market is wide, active, and strong.

The regularity and uniformity of security issues gives them a marketability impossible to other kinds of property. The size of a security issue, and the character of the demand for it, have more to do with its marketability than the intrinsic worth of it.

46. Value as Collateral. When an unexpected need for capital loaned may prove temporary, the sale of the investment in which the capital is loaned may be avoided by obtaining a loan upon the

principal,—a loan upon a loan. This is possible without trouble, expense, or loss of time, in only a very small proportion of investments, and sharply draws a line between what may properly be called “investment securities,” and investments in general.

47. It is the peculiar distinction of insurance policies written in the better companies and having a loan value, that they are the only paper on which an investor has a reasonable likelihood of being able to borrow in the midst of a money panic. And not only may he borrow on it, but at no usurious rate of interest such as he would be charged by a bank, if he could persuade a bank to loan at such a time. The amount loaned in this way by insurance companies during the panic of 1907 totaled many millions.

48. Loans upon mortgages are rare, and take time to make, and are expensive out of all proportion to the usual amount borrowed. The loan value, or hypothecary value of bonds exceeds that of most other forms of investment. A larger amount (commonly 80 per cent.) can be borrowed than on real estate. The loan can be made without expense if acceptable to local bankers; if not, there is an inconsiderable expense in postage, insurance, and loss of interest, in shipping to a banking center where the security is known. The interest on the loan will vary with the variation in rates for money, but in the main it does not exceed the interest rate of the bond. This highly desirable hypothecary value of bonds is largely overlooked by professional men and those in business life who have little dealing with banks. The great system of American bond houses is built and financed upon the superior hypothecary value of bonds.

49. **Tax-Exemption.** Another desirable feature for an investment is exemption from special tax or assessment. In the last analysis all wealth is taxed, and it is a question only of the directness of its imposition: of the incidence of taxation, as the economists say. But the incidence of taxation is so inequitable that one may often profit by knowledge of the working of this inequality, or at least secure his investment from unforeseen levies by the provisions of his investment contract, or by the provisions of statutory law.¹

¹The tax laws of a state may relieve bonds of certain classes from liability to taxation, absolutely, or may relieve them from liability on the doing of some act contemporaneous with or subsequent to issue, as in the payment of an initial recording tax. In Pennsylvania the former are called tax exempt and the latter tax free. This, however, seems an inversion of terms from an etymological standpoint. Outside of Pennsylvania we know of no such distinction that is accepted.

If the mere income from bond investment is considered, it seems a hardship that most issues of bonds may be taxed. In most states more stocks than bonds are exempt. Bond taxation seems to put a discount upon saving and a premium upon the assumption of risk. It has been stated in a recent work on bond investment that the burden of bond taxation is light. This is not the case. Some time ago a large issue of Massachusetts state bonds (tax exempt in Massachusetts) was sold to the public on a 3.35 per cent. basis. Since local taxes ran about \$16.50 a thousand, the purchase of this issue was equivalent to the purchase at par of a taxable 5 per cent. bond. A tax which, if paid, takes away from an investment 33 per cent. of the *income* is not light, or fair.

50. It may be that inexperienced buyers of bonds sometimes misunderstand the tax-exemption clause which usually appears in the trust deed and in the bond recital, stating that the sums due on the bond shall be paid by the company "without deduction from principal or interest on account of any taxes, assessments, or other governmental charges which the ——— Company may be required to pay thereon, or authorized to retain therefrom, by virtue of any present or future law whatsoever." This exempts the holder from merely the taxes directed at the company, and has nothing to do with taxes on personalty.

No other form of security investment, even stock, suffers from taxation so generally and acutely as bonds. The exemption of mortgages gained headway throughout the states long before the present welcome tendency to exempt municipal bonds, and bonds secured by mortgage on real estate. Insurance policies are exempt; savings bank deposits also.

That the basis prices of taxable bonds do not differ from those of non-taxable bonds to the extent of the local tax is due to the old principle that an unrighteous law is largely unenforceable. At the time the tax-exempt Massachusetts 3½s were selling on a 3.35 per cent. basis the taxable Massachusetts 3½s were selling on a 3.65 per cent. basis instead of a 5 per cent. basis as they should, other things apart. Or, to put the case more fairly, when the non-taxable Massachusetts bonds were issued they should have sold at a 2 per cent.¹ basis, since taxable bonds were on a 3.65 per cent. basis.

¹ Since this book has gone to press New York State has passed an epoch-making law relieving from further taxation (upon payment of a recording tax of ¼ per cent.) practically all issues that hitherto have been taxed.

51. Exemption from Care. Perhaps the greatest service rendered by investment, as distinguished from speculation, is the assurance it gives of pecuniary aid to those less capable of self-support than he who has *risks* the investment surplus into being. In speculation, the fittest survive; speculation is the brute contest of elemental forces. Investment protects the weak against the strong, and of the strong makes guardians of the weak; it is altruistic. When investment purposes are altruistic the *annuity* is generally of more importance than the *maturity*. And this fact militates, as we said, against our definition of pure investment, as a *loan*, on the basis that a promise to pay, with no time appointed, is not a promise.

For the same altruistic reasons, therefore, which make it highly desirable that an investment should have fixity of interest, it is well that the investment carry with it as little care and responsibility as possible, especially when the investor is seeking to provide over a period of years for the improvident and helpless, and any who are without business experience.

It goes almost without saying that bonds and insurance annuities are unequalled in the simplicity and freedom from care with which annuity returns accrue to the beneficiary. Funds on deposit are next in order, and were it not for psychological conditions, they would have precedence over bonds; but changing rates of interest and the condition of the principal, unprotected against withdrawals by the beneficiary, are sources of trouble. Registered bonds ordinarily require merely the cashing of checks, of course, and coupon bonds, the guarding of the bonds against loss or theft, and the cutting and cashing of coupons. Mortgages require attention to many other details, which will be taken up in another chapter. Guaranteed stocks require no more attention than bonds, during the life of the guaranty; but unguaranteed stocks are in slightly less favorable position owing to the voting, and assessment possibilities of part ownership, and to bookkeeping and other adjustments resulting from changing income return. Real estate and other non-loan investments, all of which verge on speculations, cannot, of course, be compared with the securities mentioned.

52. Acceptable Duration. Closely akin to freedom from care is the matter of duration. If a loan is secure and has twenty years to run, there are twenty years of relief from attention to it. Few investors give enough consideration to their proper wants as expressed in duration. For some purposes, notably the disposal of surplus banking funds, three or four months' commitment may be

desirable, but ten years' investment unwise. For testamentary objects, ten years is likely to be too short. Yet if there may be need of selling the loan before maturity, brevity of life tends to preserve the security in liquidation of the principal. Numerous types of bonds offer such uniformity of security with variety in maturity that bonds as a class may unhesitatingly be called the most convenient channel of investment as respects duration.

53. Acceptable Denomination. In academic discussions of investment virtues the importance of denomination is seldom duly emphasized. It is evident that the more adjustable the denomination of the investment, the more useful the particular channel which furnishes it. Banks will accept deposits in almost any minute amount, as Dime and Five-Cent Savings Banks indicate by their titles. It is the great service of savings banks that they will accept, and pay as high a rate of interest on small amounts as on large (and sometimes higher). Savings banks are without rival as an investment channel for those who have accumulated less than \$500.

One of the chief elements of attraction about the purchase of stocks is that by means of corporate shares the most modest saver may participate in proprietorship. For less than \$100 one may at the present time become part owner of the largest corporation in the world.

54. Bonds rank next to stocks in convenience of denomination. Municipals are seldom to be had in less than \$1,000 pieces, but many corporation bonds are in \$500 denomination. Although New York City has in the past issued pieces as low as \$10 in amount, and the Federal Government has outstanding to-day \$50 certificates, yet bond denominations of less than \$500 are still in the small minority with little likelihood of immediate change. However, there has recently been some editorial agitation for the \$100 par for bonds; but this is not likely to meet with general banking approval for some time to come, since it entails so much more labor upon the issuer, and selling cost upon the vendor, and therefore cost to the purchaser.

Real estate mortgages and real estate itself are greatly at a disadvantage in the matter of denomination convenient for investment.

55. As an evidence of how inadequately recognized is the important part played by denomination, it may be said that in amortizing premiums and discounts on bond purchases it is the rule of the Government and of bond mathematicians generally to

assume that the premium or discount, and the maturing interest, should be credited, and the present or future worth of the investment computed, by compounding these balances and increments of interest at the same interest rate as the security returns at the price paid. This is particularly noticeable in investments of high yield. In bonds of this character, for instance, a more circumspect accounting would consider that a higher rate of interest can be obtained by a round thousand dollars, or whatever approximation of that amount the bond costs, than by a fractional amount, too small to invest in another like bond; for to obtain equal security and convertibility the fractional amount must be put into the savings bank or trust company, and obtain only bank interest for its use. It is, therefore, only as a matter of convenience or expediency that one can justify the general practice of computing, at 6 per cent., the premium or discount, and the interest upon the interest, to find the present worth of a 6 per cent. investment having a maturity date, like a bond. This matter receives more convincing treatment in its proper place in the chapter on *The Accountancy of Bond Investment*.

56. Potential Appreciation. The ninth and last element of a perfect investment considered worthy of separate treatment is potential appreciation. To what extent, if any, an investor has a right to expect or hope for appreciation is a highly debatable question. Is appreciation ever the result of an inherent quality, or always merely of an accident—of an unforeseeable combination of circumstances? If inherent, would it not be certain, and therefore would it not have to be paid for at the time of investment, like all other investment virtues? If paid for there would be no gain, or appreciation, at all. If an accident, then from the standpoint of the investor it is merely a speculative possibility, and not a principle to be sought, defined, and appraised. There seems to be no logical escape from the horns of this dilemma.

Appreciation, we are compelled to say, is not the manifestation of an inherent quality, on the same plane of scientific analysis and treatment as the nine foregoing qualities. But since it is properly and studiously sought for in an investment some attempt at defining it will be well worth while.

57. Appreciation, or increase in market value, is the result of a growth in the competitive demand for a security, property, or commodity; and this demand arises in turn from a wider *recognition* of one or more of the virtues of the investment: usually that of

security. Therefore prospective or potential appreciation is the result of a temporary condition, rather than an inherent quality, but legitimately the object of search and attainment in a security since the discovery of it merely requires superior knowledge of all the investment qualities, particularly that of security, and its attainment does not involve any risk, and is not at the expense of the other desirable elements.

58. The possibilities of appreciation in *speculation* are without limit; in a pure investment they are curtailed by the fact that at maturity only the face value is returned. A strange misapprehension exists with regard to the relation of appreciation to discount, and of depreciation to premium, in an investment. Many people refuse to buy a bond selling at a premium because they feel that they are losing money in the long run in so doing. And from similar reasoning they much prefer to buy a 20-year 4 per cent. bond at 93.45, rather than a 20-year 5 per cent. bond at 106.55, although the net return is the same. The illusion of the discount deceives them. And there is no gainsaying that this very general illusion causes a 4 per cent. bond to sell relatively nearer to par (i.e. at a lower net income) than the 5 per cent. bond of similar character and worth.

59. Now there is a valid reason why all sorts of investors may prefer discount to premium bonds: because they do not understand how to amortize the premium or discount, as the case may be. If it is a premium that is disregarded or inadequately charged off, the owner of the security is periodically drawing a portion of his principal as interest, and therefore at maturity he is left with less principal than he had in the first place; whereas, if it is a discount that is inadequately amortized, the owner will receive less income, to be sure, than he is entitled to from year to year, but at maturity he will have more principal (including undistributed interest) than at first. In brief, an unamortized premium eats into capital to the benefit of "interest," but an unamortized discount adds to capital by saving out of interest. State laws concerning the amortization of premiums and discounts betray a woeful lack of bookkeeping knowledge.

Hence there is a legitimate disinclination on the part of an investor, particularly if he is a trustee and amenable to state laws governing fiduciary investment, toward the purchase of premium bonds, and a preference for discount bonds; but few investors distinguish between this legitimate preference, which is due to un-

familiarity with accounting, and the ill-grounded preference, which is due to a misunderstanding of the nature of appreciation and depreciation.

There is no appreciation in the fact that a bond bought to-day at 95 will be worth 100 in ten years at maturity. Appreciation is a gain in market value; but the market value of an interest-bearing loan cannot be measured in mere dollars and cents. There may be appreciation in a premium bond, and yet a loss in dollars and cents selling price. There has been appreciation in a 6 per cent. bond bought at 107.79 with ten years of life to run, that five years later is sold for 105, for on the same basis on which it was bought it is worth, when sold, only 104.38. Those to whom this is not clear are referred to Chapter XXXIV.

60. The only true basis of worth is the net return in income, as every bond man knows. All bond issues (it is particularly noticeable in municipals) are figured for purchase and sale from the income percentage basis. A 45-year New York City 4 is always worth more in dollars and cents, when New York City 4s are selling at a premium, than a 40-year New York City 4. But the real worth of the two maturities is practically the same, and is measured in terms of the percentage of return upon the investment. New York City long term 4s, whether 40 or 45 years, are worth a 3.80 basis, or a 4.10 basis, or whatever the fact may be.

Therefore, to repeat, there is no real appreciation in the mere retirement at maturity of a loan bought below par, since the monetary difference between the cost and par was reckoned in figuring the basis price upon which the security was bought. At least this is invariably the case in the purchase of bonds, all the price tables for which take the discount into accurate consideration. The cost prices of all investment securities which are scientifically bought are figured upon the basis of their net return at the given price.

61. This chapter will have missed its aim if it does not impress the fact that there are numerous desirable qualities to be sought in an investment, but that, to a certain extent, they conflict with one another. It is for an investor to determine what are his essential needs, and then seek an investment in which the qualities are most prominent which coincide with his needs. He should then be content with whatever degrees of the other qualities he can obtain.

We may say then, in summary, that any investment which will

measure up to the standard of these qualities mentioned, is well-nigh ideal. If an investor has obtained (1) security for his principal, (2) a fixed or definite interest, (3) a fair return in income, and (4) an investment which is salable without difficulty, and (5) is acceptable as collateral, and (6) is free from direct tax, and (7) requires almost no care, and (8) matures after a satisfactory lapse of time, and (9) is in convenient units of denomination, and (10) has as good a chance of appreciating as of depreciating as its qualities become more generally recognized,—that man is to be felicitated. It will be instructing to apply these tests in any comparison of securities that we shall have occasion to make as our work progresses.

62. The three investment qualities that receive the most investigation are security, income, and marketability. Obviously all three cannot exist in a high degree in the same investment. If the investment is thoroughly safe it cannot return a high rate of interest, or rental, and at the same time have a broad and active market, for such a market implies competitive demand, and the competition for a security which was at once safe and of high yield would immediately bid up the price and thus lower the yield.

But if through ungrounded prejudice or lack of knowledge a security is without vogue and has to be sold by personal solicitation, it may be both safe and of high return. *It is the principal, and in every way commendable function of the better American bond houses to sell to their clients issues of bonds which have unimpeachable security and yet an income return considerably higher than would be the case were the issues well known to the investing public at large.*

CHAPTER IV

STOCKS VERSUS BONDS

63. Since stocks are the typical speculative paper and bonds the typical investment security, it is manifestly unfair to measure them both by the investment standard to the predetermined disparagement of stocks. But on the other hand stocks, as a class, are so generally thought of as investments, and the distinction between investment and speculation is so inadequately recognized, that a contrast of stocks with bonds as channels for pure investment may be worth while, even if the conclusion is foregone.

The comparison may well take the form of a test by the nine or ten postulates of our ideal investment, beginning with Security of Principal.

64. *Security of Principal.* From which, stocks or bonds, is a man most sure of recovering the funds he has once relinquished? This question of itself involves no matter of profit, or of income, but merely of recovery. The answer lies in the very nature of stocks and bonds. Legally, a share of stock is a certificate of ownership of a corporation. Unless otherwise stipulated, it represents a right to pro rata participation in control, in profits, and (if the corporation liquidates) in whatever assets are unattached. But although a share of stock represents part ownership in a corporation, and the right to participate in profits, it does not represent any property except this right.

65. Most people fail to comprehend the meager property rights of stock, hence all the nonsense and farrago about stock watering,—as if there were or should be some inherent significance to the par value of stock; or that the par value should represent so many dollars paid in. The par value of bonds, even, does not signify any definite payment in purchase. Most people seem to think that a certificate of stock is, or should be, equivalent to a cashier's check, which certifies to a deposit of money equal in value to the face of the check, or of a warehouse receipt calling for the delivery of some commodity equal in weight or quantity to the amount of the receipt. There is nothing in the legal nature of stock to give

the owner cause to look to the company's assets for the full recovery of his principal.

Except in bank stocks, recovery in liquidation seldom amounts to more than the merest fraction of the sum invested; for ordinarily corporations expire only because of their inability to do business at a profit; and the equitable interest in unprofitable property, which survives the prior demands of creditors, cannot, as a rule, amount to much, so long as corporations are financed largely by the sale of obligations, secured or unsecured. When, as nowadays, not only the rights, franchises, and physical properties, but even the very shares of the corporation, are pledged to secure borrowed money, the stockholder has little to expect under the hammer.

Security of Principal in a stock investment is further lessened to the extent that the shares are subject to assessment.

66. The only resource for the recovery of principal in stock purchases is sale. Two questions then arise: is there a market for the stock; and will it sell for more or less than cost? Marketability of stock will be discussed in its turn. As to market prices, stocks, in keeping with their speculative character, fluctuate more widely than bonds.

If the stock is bought at an average price (assuming such a price), and its intrinsic worth remains undiminished, the investment can be recovered by sale a fair portion of the time. But if its intrinsic worth lessens or disappears, the possibility of sale at cost, or better, diminishes or vanishes, taking with it any element of security for the principal. So, in the last analysis, Security of Principal depends upon the permanency of equitable assets having a pro rata value equal to the cost of the stock.

67. Bonds, on the other hand, represent, in the majority of cases, an investment by the obligor of an amount at least equal to their cost. Not legally but in fact, they correspond with reasonable accuracy in the comparison to cashier's checks and warehouse receipts. Although the amount of debenture obligations is growing rapidly, nevertheless it is small in comparison with the amount of bonds that have the backing of mortgage or collateral. The principal of bonds, therefore, is usually fortified by actual representative assets on which it has a prior claim, and the bondholders as a class are secured, or at least preferred creditors.

68. **Stability of Income.** Just as a knowledge of the relative legal status of stocks and of bonds makes clear the superior security for

bond principal, so an understanding of the economic nature of each makes clear the necessarily inferior stability of dividends as compared with interest payments.

Economically, stocks represent shares in the corporate risk. If shareholders have contributed all the capital their dividends represent, in part, the return on *invested* capital, since a company doing business in good faith must have some assets realizable under any conditions. Even when shareholders have contributed all the capital, the returns are bound to vary from year to year and to show maxima and minima of net earnings. The difference between high and low earnings represents the reward to the *speculated* capital. The inevitableness of high and low tides of income often obtains recognition in the share capitalization, by the classifications, Preferred and Common Stock.

69. Whether the capitalization consists merely of the share liability, or of shares and funded debt, the two-fold nature of the returns can be compared to the returns on capital invested in real property. A man may buy a piece of real estate with a mortgage for two-thirds of its value. The surplus income from the property, after payment of taxes, repairs, insurance, and interest on the mortgage, is his premium for the assumption of risk. He is entitled to greater return on his speculated capital than the mortgagee, who takes little or no risk.

70. In like manner it is easy to provide, in a spirit of conservatism, for the stability (i.e. not only for the security, but for the regularity and uniformity) of the interest charges of a company, when it is bonded, and when legal distinctions exist between the classes of its capitalization. But to the extent that earnings vary, the dividends may properly adjust themselves to preserve the integrity of the surplus, and for the disadvantages to which the shareholder is subjected by this adjustment he should be recompensed by high returns upon his capital, if they are possible.

When the dividend rate is less than the interest rate of the same company it is no sign that the shareholder is not being reimbursed so fully as the bondholder because the so-called par value of stock approximates less truly than the par value of bonds the amount of capital committed.

A table of comparisons will readily show how much more susceptible to unfavorable influences are the dividends of a corporation than the interest payments. We suppose a company capitalized with \$700,000 outstanding bonds, \$250,000 Preferred Stock, and

\$650,000 Common. The ratios assumed in capitalization and earnings will not be thought unusual.

	GOOD TIMES		NORMAL TIMES		HARD TIMES	
Net Earnings		\$150,000		\$100,000		\$80,000
Bond Interest (5%)	\$35,000		\$35,000		\$35,000	
Pref'd Stock (6%)	15,000		15,000		(4%) 10,000	
Common Stock (8%)	52,000		(4%) 26,000		(-) — —	
		<u>102,000</u>		<u>76,000</u>		<u>45,000</u>
Balance for Surplus, etc.		\$48,000		\$24,000		\$15,000

In good times each of the three classes of capital is paid something like a fair return upon par. If these three income accounts represent three consecutive years, it will be seen that funded debt has been paid 15 per cent., preferred stock 16 per cent., and common 12 per cent. If these three years were representative, the common might be considered unfortunately situated; but we must remember that a common stock subject to such fluctuations in return, or to such a low average of return, would probably cost less than par and would represent less than \$100 per share of capital paid in; therefore the nominal annual return would be much less than the real.

In hard times, when earnings decline and the "margin of safety" narrows, and even bond interest is threatened, the equities in earnings, charged to dividends and balances, will be adjusted to preserve the integrity of the interest as long as possible. Interest must always be supported at the expense of dividends.

71. Although stability of interest has more to do with the economic than with the legal position of bonds, nevertheless the latter has its marked effect. In the trust agreement of bond issues, whether mortgage or debenture, precaution is usually taken to prevent the creation of future indebtedness that, in whole or in part, could become a lien prior to the obligations. In the nature of corporations there can be nothing to prevent the stockholders who are in control from imposing on the company obligations that shall be a charge upon revenues to be met before dividends are paid.

72. In considering securities by types and classes there is a natural tendency to have in mind the more prominent issues listed on the leading exchanges. Yet listed securities, but particularly listed stocks, are not thoroughly representative of their classes. Therefore if it is the common practice to lower the dividends on our best listed stocks it is a fair inference (supported by the facts)

that, in general, reserves are not sufficiently strong to relieve dividends of their natural office in the income account.

During the first nine months of business depression following the panic of September, 1907, the dividends of 80 large railroad and industrial corporations were passed or reduced. Sixteen railroads passed their dividends; among them the Missouri Pacific, the Cleveland, Cincinnati, Chicago, and St. Louis, the Southern Railway, the Erie, and the Lake Erie and Western. Ten prominent railroads reduced their dividends; including the Pennsylvania, New York Central, Atchison, Louisville and Nashville, Norfolk and Western, and Atlantic Coast Line. Twenty-six prominent industrial corporations omitted dividends entirely and twenty-nine radically reduced them.

73. Frequently dividends are passed, or cut, or the proper rate is not declared, to serve the ends of an irresponsible directorate. The minority shareholders have almost no voice in the matter. Recently determined, but not altogether successful attempts have been made in the courts by shareholders in rich corporations,—such as the express companies,—to make these companies disgorge some of the accumulated profits. In illustration of the extent to which this kind of injustice can be carried,—some time ago the owners of one of the large packing houses of the country sought, by quiet stock purchases in the open market, to obtain control of another packing house; but their plan was frustrated before they acquired a majority of the shares. In retaliation those who control the latter house have paid no dividends, although 40 per cent. is being earned on the stock, but have recompensed themselves by princely salaries. The would-be purchasers of the control are in the situation of the hunter who held the lion's tail, and didn't know whether to hang on or let go. Meanwhile the small shareholder has his moral. But both companies have always promptly paid the interest on their outstanding debts. The courts would speedily find relief for a minority note or bond-holder who was deprived of his return in the evolutions of the conflict.

74. *Fair Income Return.* Since the shareholder, not the bondholder, assumes the main hazard of corporate enterprise, his return in dividends, immediate or prospective, should, in general, exceed the interest returns by that ratio which fairly represents the relative risk to the two classes of capital. Any expression of opinion as to whether he does, in the long run, obtain this relatively fair return must, at present, be purely personal. Any one with a taste for fig-

ures and ample leisure for investigation might ascertain the facts beyond cavil for listed securities; but to do so he must institute an elaborate system of constantly changing costs (or market prices) for stocks and bonds and corresponding net returns upon cost.

75. No attempt is made here to prove anything by figures, but it may be a matter of interest to note that the more important corporations of the country have made less return, during the past decade, on the par value of their share capital than on that of their bonds.

Many causes may be assigned as influential in this result, notably the fact that the cost of bonds has represented a larger percentage of parity than the cost of stocks, and that the superior marketability of stocks largely offsets the inferior security and has to be paid for in increased cost or lessened return; but the writer believes that the dividend averages below represent frustrated, or at least, unfulfilled hopes:

**THE AVERAGE RETURN OF TWO DOZEN REPRESENTATIVE RAILROAD STOCKS
FOR TEN YEARS**

Common Stock....less than $2\frac{1}{2}$ per cent.	}	Average $2\frac{1}{2}$ per cent.
Preferred Stock....less than $3\frac{1}{2}$ per cent.		

**THE AVERAGE RETURN OF A DOZEN REPRESENTATIVE INDUSTRIAL
CORPORATIONS**

Preferred Stock....about 6 per cent.	}	Average $4\frac{1}{2}$ per cent.
Common Stock.....about 3 per cent.		

If these averages have any significance they confirm the mature judgment quoted in the second chapter (§ 24), that "larger gains are to be made by investment than by speculation, so far as the non-professional is concerned."

76. **Marketability.** We have just stated that the superior marketability of listed stocks over listed bonds was part cause of the low average return upon the cost price shown by the stocks in the above table. But again, let it be remembered that listed securities in general are in the minority, and are by no means representative for illustration of investment principles. The tendency to use

them is natural because board transactions are recorded, and easily accessible for reference.

77. There is no statistical means of proving, among *unlisted* securities, the superior marketability of bonds over stocks, but the writer's personal testimony, based on professional duties, no small part of which has been to find markets throughout the country for *unlisted* and inactive securities, is that bonds are more easily sold than stocks.

This, too, is the natural inference from the superior intrinsic worth of bonds, and from the fact that investment conditions are more uniform, and can be more easily and generally recognized, than speculative conditions. The article of superior and acknowledged merit will be the more readily disposed of.

78. The American bond market,—that is, the bond market in Canada and the United States,—is an institution without parallel in other countries. Although the discussion of this market comes more properly under other heads, such as *The Bond Houses* and *Listed Versus Unlisted Bonds*, it is fitting to state that the American bond market is the basis of a special business that encourages professional knowledge of values and seeks selling places for the multitudinous issues. The result is a broader and quicker response to bond offerings than the *unlisted* stock market furnishes for stocks.

79. **Hypothecary Value.** The value of any security as collateral depends mainly on its market and its worth. In general, a listed security is more acceptable as collateral than an *unlisted*, because current quotations are an easily accessible index of current values and the frequency and volume of sales are an indication (although not always reliable) of the breadth and responsiveness of the market. The more actively dealt in a security is, the less necessary is a knowledge of its intrinsic worth as the basis of loan.

For this reason listed bonds have no advantage over listed stocks, especially when hypothecated in New York. The loan clerks of the New York banks that cater to brokerage houses are too likely to make loans with an eye solely to the quotations of the day. When these quotations are fictitious the result of a quick collapse in prices is sometimes disastrous. It goes far to explain the comparative suddenness of money crises in New York.

The interior banks, which perform banking functions more properly than the metropolitan banks, ordinarily give more attention to the merit of investments. If, in general, the security and market-

ability of bonds are superior to that of stocks, it is the natural and correct inference that bonds, in general, are the more acceptable collateral.

80. Tax Exemption. As regards the burden of taxation very few people realize the great disadvantage under which bonds labor; for, although in no state are all bonds unequivocally free of tax, in 39 states and territories shares of stock may not be assessed against shareholders when the issuing corporation or its property is directly taxed.

Only Delaware, Georgia, Louisiana, and Washington assess shareholders quite irrespective of the corporation tax; but Maryland, the District of Columbia (in a measure), Alabama, and Iowa assess shareholders on that part of the value of their stock which represents the excess of its market value over the assessed value of the properties. The legal theory is that this excess represents otherwise untaxed good-will and other intangible property.

The fact that government bonds are free from tax to individuals within the country is of little avail because of their prohibitive price.¹ However, the insular issues, the Philippines, Hawaiians, and Porto Ricans, are tax exempt and sell on approximately an investment basis. The bonds of states are now very commonly exempt to holders within the given state, and the proportion of municipal bonds exempt under the same conditions is steadily growing. In fact the tendency to exempt both bonds and stocks seems as inevitable as it is welcome.

But as conditions now are, personal property taxes work greater hardship to bondholders than to stockholders, for the demand for tax-free bonds is greater than for tax-free stocks, since bonds are the staple investment of institutions and trustees whose holdings come under the cognizance of courts and state officials.

81. Freedom from Care. So far as the mere instruments are concerned, stocks and bonds are about on parity in regard to care. Loss of either security is, at the most, a matter of mere inconvenience. But a coupon bond is negotiable and passes by delivery. Therefore it should be guarded as carefully as currency.

As to freedom from care in the larger sense, ownership carries with it the major responsibility, and the degree of individual thought or anxiety should conform to the degree of investment risk.

¹ Even the interest from government bonds is included in the income on which corporations are assessed.

82. Acceptable Duration. The test of acceptability in the duration, or life, of the investment, cannot be applied in this comparison, since stocks, ordinarily, have no maturity. A discussion of duration must resolve itself into a question of marketability, on which we have already commented.

83. Acceptable Denomination. To the large majority, the possibility of having funds invested in small denominations is a great advantage. Occasionally a big investor or corporation objects to \$500 pieces and eagerly seizes upon \$5,000 bonds like the Pennsylvania notes of 1910, so as "not to clutter up the safety deposit box." But registered bonds and stock certificates have another advantage in common, in that one certificate may serve for any denomination. Although whatever advantage there is lies with stocks, inelasticity of denomination is not so marked as in the case of mortgages, which, as channels of investment, suffer severely from this limitation.

84. Appreciation. The economic and legal positions of bonds and stocks, which throws the onus of risk on stocks and lessens their security of both principal and interest, will bring commensurate possibilities of appreciation. The very nature of a loan precludes great possibilities of advance in price, as we have noted and shall note elsewhere. An exception may be taken for loans which are convertible into stocks. In the chapter on *The Range of Bond Prices*, the possibilities for rising bond prices will be canvassed.

85. For this place it is sufficient to say that meritorious American stocks have a better prospect for a high level of prices during the coming decade. In some degree this is due to a purchasing power for gold that is still on the decrease, but more particularly to the fact that the North American states are still immature in their physical and industrial development. The price-average of standard listed American stocks has advanced very rapidly during the past ten years. German and French securities of the same type have barely held their own, and English stocks have steadily declined.

86. Probably it is because of a national confidence in the future of corporate activity, that with necessarily inferior security stocks appear to have made a comparatively low return to investors. There have, indeed, been rich speculative rewards in stocks, but a large part of them have gone to the professional few. All the safeguards with which business practice and law can surround securities are none too many for "the average investor."

CHAPTER V

THE CHANNELS OF INVESTMENT

87. We have commented in a general way on the merits of speculation and investment as methods of gain. We have studied stocks and bonds as most typical, in this day, of the respective methods. We have concluded that more satisfactory gains are derived from investments than from speculations. To disarm criticism, let it be said that some properties and securities, nominally speculations, are really investments. Pennsylvania Railroad stock, with a record of uninterrupted dividend for 50 years, and with relatively slight variations in the dividend rate, is almost a pure investment when bought at a low price so that it is convertible without loss most of the time, and will return 4 per cent. or better even when dividends are at the minimum.

With the understanding, then, of what is meant by investment in distinction from speculation, the discussion is hereafter confined to bonds; except that a preliminary word is in order, outlining the principal channels of pure investment, of which the main is bonds.

88. Starting with the premise that all pure investments are loans, then all investment securities are credit instruments, or contracts for the future delivery of money.

89. *Investments Classified by the Nature of the Interest.* Since there can be no contract without consideration, loans may be divided according to the nature of this consideration into (a) those with no *monetary* rental value, (b) those with fixed, periodic rental or interest, and (c) those with indeterminate time or rate of interest payment.

(a) Credit balances in open accounts are a form of commercial credit that may be transferred by what amounts to purchase and sale, but formal interest rarely attaches to it. We are unaccustomed to consider such a form an investment where there is no written contract and transfers of the credit are seldom made. Since 1879 United States greenbacks have been a form of public credit bearing no interest. They are callable credit con-

tracts. Illustrations might be multiplied. It is the purpose, however, merely to indicate the breadth of the investment field and to outline its main channels.

(b) Loans with fixed interest are those, of course, with which we are most familiar, and require no comment to obtain recognition.

(c) Loans with indeterminate interest rate are, fortunately, in great minority, but by no means unknown. Income bonds are typical of the class.

90. Investments Classified by the Contract of Redemption. A more instructive classification of pure investments, to determine the place and importance of bonds among them, is that according to the contract for redemption. Loans may be payable as to principal (1) at the will of the lender, or (2) at the will of the borrower, or (3) at a pre-arranged time. As the result we have demand, optional, and time loans, respectively. Each is worth comment.

91. Demand Loans. Since the one essential of a loan is its ultimate return, an obligation is in its most effective state when the privilege of recall may be exercised by the *lender* at any time. Measured by this standard demand or call loans are the purest of *simon-pure* investments. Unfortunately for the lender (who buys the loan), the corresponding right to make payment is usually accorded the borrower. If there is more than a possibility that this right will be exercised by the borrower (who sells the loan), then the investment quality called "duration," is weakened.

92. Credit balances in current accounts, which have just been mentioned, are informal demand loans. Greenbacks are really demand loans, by virtue of their formal promise of payment; but since they bear no interest, they, too, are not investment instruments.

93. A pass-book, or its recent substitutes, is a certificate of a bank's indebtedness to a depositor, and if interest is paid on the deposit, represents an investment of the demand-loan type, for, although the bank may have the right to close the account, it is usually the depositor who recalls the loan.

By power of immediate conversion a lender can protect his investment against depreciation in security, and against reduction or cessation of interest, and he is in position to take advantage of low prices in other forms of security investment. This last is no mean advantage if he is competent to avail himself of it, for interest on demand loans is highest at or near the times of periodic convulsions in security prices. The average call-renewal rate in New York during 1907 was about 6 2-5 per cent. The chief evil that con-

version cannot directly anticipate is the decreasing value of the monetary units. But indirectly conversion may for~~and~~ loss by transfer of funds from investment to deposit or speculative account until such time as may be propitious for reinvestment. But he is a shrewd, foreseeing man who can successfully avail himself of this possibility.

94. The trouble with demand loans is the unreliability of this power of conversion, when it is most desirable. A bank account is a call loan; an interest-bearing bank account is an investment; but if the majority of depositors call their loans in concert, the bank must close its doors. The majority will act in concert only at the time it is most desirable to convert, namely, when the bank is weakest, whether from internal or general financial troubles. Against concerted action the laws of many states grant savings banks the privilege of requiring 30 to 60 days' notice; and conversely, again, this privilege is naturally exercised at the very time that it is most worth while to investors to have the money for more profitable use.

95. Call loans secured by highly negotiable collateral (which is the basis of the bulk of business done by many metropolitan banks) is a better type of investment, technically, than bank deposit, but respecting the collateral it requires a superior knowledge of intrinsic values, and an eternal vigilance against collapse in prices. Call loans in financial centers were by no means as good as cash in the fall of 1907, nor were deposits, when banks and trust companies "joined together in repudiation of specie payment."

96. The ordinary promissory note of the demand type, in business, is a form of call loan which is losing its investment standing, for want of satisfactory security. It is probably as often a memorandum of obligation as a genuine loan. Commercial banks will take care of any legitimate extension of personal credit, and there is no need publicly to offer personal paper that is callable.

97. Commercial drafts are instruments for the collection of funds, usually on demand; but when drawn they are not credit instruments; and only when secured by indorsement may they be used as credit funds and pass from hand to hand. But as such they should be classified as demand loans.

Sometimes overdue notes, and often matured bonds, remain uncollected for a time. If payment has not been demanded the cause may have been inertia on the part of the owner, or ignorance or forgetfulness of the due date; but probably more often than not

(particularly in the case of government bonds) the reason is that the owner is more concerned in having a safe depository for his money, than in getting any present return on it. Although these overdue loans are demand loans, they are not investments when they make no return.

98. **Optional Loans.** The adjective "optional," as applied to loans, usually has reference to the *borrower*: it is optional with the borrower to return the funds. We have noted that call loans, which are demand loans, are also optional loans. That is to say, if the privilege of recall is granted the lender it is also granted the borrower. Under which heading a call loan more properly falls, depends upon which party to the transaction is most likely to exercise the privilege of liquidation.

99. Bank "deposits," which are call loans, were classified as demand loans rather than as optional loans, because it is not the policy of banks to retire loans or borrowings. In the case of deposits, or optional loans made by a bank to others, if the account is undesirable, the bank usually insists on larger equities in the collateral or on higher rates of interest. Either requirement will eliminate the weaker loans or strengthen them.

There are many other forms of optional loans, the optional feature usually arising from the peculiar exigencies of the borrower. Among them are delinquent tax certificates, and city and town warrants. Of necessity loans returnable at the will of the borrower, the obligor, rather than at the will of the lender, the obligee, as a class are an inferior form of investment.

100. There is no conceivable advantage in having money invested in an optional loan, merely from the fact that the loan is returnable at any time. There may, however, be an advantage if the loan is returnable only at a substantial premium. This is the case in bonds which are callable, let us say, at 110. The buyer, who loans funds to the issuing corporation, is content that his money shall be returned to him, providing that he shall be paid a bonus of 10 per cent. for the trouble, and possible loss, to which he shall be put by the necessity of seeking another channel of investment before the regular date of maturity.

But it is safe to say that when an investor is forced to part with a security at par, which otherwise would not mature for some years, it is to his disadvantage. Naturally the security would not be called unless it was good, and reinforced by equities which the issuing company wished to bond, or because equities or current

interest rates made refunding possible at a lower percentage of interest. In most cases it will be found that the outstanding issue is an encumbrance and that the option clause in the mortgage has been seized upon to clear away the old issue to give better defined and understood security to the new. Very few owners of Seattle Lighting Company Debenture 6s, we venture to say, were pleased to learn, in January, 1910 (with investment prices at a fairly high level), that their 6 per cent. investment, which cost the majority of them less than par, and therefore netted them over 6 per cent., was to be retired at 101, to better the position of the refunding bonds.

101. But even at a considerable premium, the callable feature may be a disadvantage if the bond would sell at a premium without the privilege of redemption. An illustration is the Chicago and Northwestern Sinking Fund 5s and 6s of 1929. The 6s are now selling at a price to net somewhat over 5 per cent. The merits of an obligation of the Chicago and Northwestern of this grade entitle it to sell at nearer a 4 per cent. than a 5 per cent. basis. But a sum equal to at least 1 per cent. of the outstanding bonds must be appropriated to the purchase of them at a price not exceeding 105, at which they may be drawn by lot for cancellation. Therefore, the purchaser runs the risk of losing, at 105, a 6 per cent. bond now selling for about 111.

More light is thrown on the advantage or disadvantage of callable bonds by the comments on estimating their net yields.

102. *Perpetual Loans.* There are certain of the so-called "perpetual loans" that are really hybrid, and properly classified under optional loans. They have no date of maturity and may not be redeemed by the owners; but the issuing government or corporation may redeem them at will or after a certain time. The Republic of Cuba (External Debt) 5s represent a government coupon obligation of this type, callable at 100, and the Securities Company, of New York, 4 per cent. Consols, a registered corporation bond, callable at 105. The privilege of redemption at 105 of a 4 per cent. "perpetual" corporation bond is hardly an objectionable feature.

103. *Perpetual loans* (particularly those that are irredeemable) are altogether the despair of any who try to think logically. They are the fourth dimension of security investment. In the first place a loan is a promise to pay, and an investment security is a formal written contract for the future delivery of specified funds. A contract of payment implies a stipulated time; and no time is set for

the repayment of perpetual loans. Therefore they are not contracts; therefore they are not loans.

The flaw in this *reductio ad absurdum* is the assumption that the return upon the investment is necessarily *rental*, or interest, and nothing more. Since perpetual loans are bought with full knowledge that they are not to be repaid, and that conversion may be attained only by sale, as in speculations, the net yield on the purchase price must be considered as composed of the rental value money for very long time investments, and an insurance premium to cover the risk of depreciation in the security for a "loan" of the given grade, whether it be the good faith of a government or the tangible properties of a corporation.

104. To estimate the amount, per annum, of insurance premium, it is necessary to estimate the degree of risk. The better the security for the investment, the less the premium. But in considering the quality of the security, durability is a virtue distinct from equities. The perpetual obligation of a highly-prosperous but tariff-dependent industrial corporation, albeit secured by properties worth many times the authorized bond issue, would be considered by the discerning as inferior to the simple short term debenture of the better American municipalities.

Considered in this light, perpetual loans do not offer such promising material for mental calisthenics. The "loan," then, is repaid in the form of an insurance premium; but how soon repaid depends on the quality of the security. The poorer the security the lower should be the price, in order that the net return may be sufficiently large to contain, beside the rental value of a long time loan, an insurance premium to cover the value of the principal of the loan, in a greater or less number of decades.

If the perpetual loan remains good, and pays interest after the insurance premiums have, in a sense, retired it, there has been an appreciation in the investment.

105. The longer the life of a loan the less valid is a projection of present factors of safety as determining the future safety. That is why a short term unsecured note of company with steady earnings, largely in excess of fixed charges, may be safer than its first mortgage long term bonds. The application of this principle *ad infinitum* to perpetual loans is a cause of their gradual decline in popularity. The nations of Europe, which formerly issued these interminable obligations, are gradually adopting our policy of paying a debt within two decades.

106. As far as security is concerned, a bond which runs for several centuries is practically a perpetual loan. The maturity date of the West Shore Railroad First 4s, which is Jan. 1, 2361, is hardly of security value to the present generation. The character of the issuing company, and of the lien, and the guaranty of the New York Central, are factors making for stability in the market price for the bonds. It is in the ability to convert this bond in the open market that the investment principle of repayment resides.

107. **Time Loans.** Time loans, in the parlance of the Street, are those in which the contract sets a definite time for the future delivery of funds, and in which there exists no option of prior payment for either party. Of course by (mutual) consent, the loan may be paid before the due date; but this *de iure* is a new contract, making void the old. In bonds the situation is illustrated in the case of an issue which is not redeemable, but for which there is a sinking fund applicable to the purchase of the bonds, in whole or part, in the open market. Redeemable bonds are time loans until their optional date. If callable any time thereafter, they become optional loans. (See § 341.)

108. Time loans, of course, form the bulk of transactions in credit. The fact of a predetermined maturity date, especially in credits of short tenure, tends to check fluctuations in investment value. The business structure would shake to its foundations if the duration of the major part of its loans was uncertain.

109. For an enumeration of investment channels nothing is gained by the subdivision of time loans on the basis of duration or any other; promissory notes, commercial paper, in general corporation notes, revenue loans, etc., are the leading channels of short term investment; and of these commercial paper is by far the most important. Even in this country with its bond-secured currency there is a growing realization that with better facilities for the conversion of commercial paper, its short duration would permit the maintenance of a small cash reserve to the benefit of business generally.

National banks, commission houses, and, in general, private investors who have occasion or are accustomed to deal in bonds, rather than in any form of personal or industrial paper, may quite readily find among the great multitude of municipal and corporation bonds outstanding some issue in the market which will meet their most exacting wants respecting month of maturity, interest

rate, etc.; but in ordinary times these short term loans will make a small return upon the investment.

For the general purposes of investment, loans of at least some years' duration serve best. Bonds and mortgages are the two standard classes of loans of duration.

110. There is justification, in theory, for classifying some forms of insurance as investments,—such a form for instance as endowment insurance in which the principal with interest is returned at some future time. These forms are virtually loans in the nature of contracts to deliver, for consideration, certain funds under certain conditions. Their security ranks very high. Some forms are convertible, i.e. have a "cash surrender value" and have excellent hypothecary value. But insurance policies fail as investments, because such income as may be attached to them is small and incidental. The placement of funds in insurance has protection, not income, as the primary motive. The return yielded even by annuities proves this.

The two leading investment channels, the bond and the mortgage, are worth a careful comparison, such as we essay in the next chapter,—not with the thought of extolling one at the expense of the other, but rather for the sake of employing the investment tests we have set up, and to come to a satisfactory understanding of both classes of investment.

111. However, this much should first be said, that a cursory glance over the loan field reveals the domination of bonds and mortgages among the various kinds of investment. Bonds indeed are closely associated with mortgages. Mortgage bonds, which form the bulk of our corporation funded issues, are merely fractional parts of ownership in a mortgage. There is very little difference, again, between a bond and a promissory note. The bond is usually one of a series and, by common law, more necessarily formal in its make-up. Promissory notes, in turn, are a form of commercial paper, and so also are drafts. A survey of the channels of investment, then, leads to the conclusion that bonds and mortgages dominate all other classes of pure investment.

CHAPTER VI

BONDS VERSUS MORTGAGES

112. In the financial forum no topic furnishes material of livelier interest for debate than the time-honored question: "Which are the better investment, bonds or mortgages?" The contest is fought over and over again without casualties to either side, and each time, when the tumult and the shouting dies, advantage never seems to rest convincingly with either side. An attempt will be made in this discussion to avoid the usual *parti pris* if even at the expense of the interest engendered by partizanship. There can, however, be no question that, between them, bonds and mortgages nearly monopolize the disposition of funds destined by private persons for permanent investment, if one disregards savings bank deposits. Bonds and mortgages are the principal channels of investment. This being the case, it is not a matter of surprise that the discussion of their respective merits should recur perennially.

Perhaps a satisfactory way to present the pros and cons is to apply the requirements of our ideal investment. In the following comparisons it is most necessary to remember that we are dealing with bonds as a class and mortgages as a class, and that each class has within it loans good, bad, and indifferent. Comparison remains fair and profitable only by steadfastly adhering to the types.

113. **Security of Principal.** It is unfortunate that no reliance can be placed upon statistical material in considering the relative security of funds invested in bonds and mortgages. Only by visiting every office of record could one ascertain the number and value of mortgages that go wrong from year to year. A census of bond defaults would be an equally herculean labor. It is not, however, beyond possibility that municipal defaults, and the causes therefor, will be accurately recorded in the future. Henceforth all necessary facts for the appraisalment of railroad bonds may be had from the Interstate Commerce Commission. Private enterprise may, in time, collate data already extant, relating to failures of public service corporations. Indeed beginnings have already been made by the bond houses; but their investigations are for business pur-

poses and not universally for publication. The obligations of industrial corporations will give meager statistical returns for years to come.

114. Statistics aside—no one conversant with bonds and mortgages will deny that American municipal bonds have been, for the last 20 years, a safer investment than American real estate mortgages; or that American “industrial, mining, and miscellaneous” bonds,—if they may so be classed,—are more unsafe than real estate mortgages. The debatable ground respects the relative security of railroad and public service bonds and real estate mortgages; and therefore of bonds as a class, and real estate mortgages.

115. Overlooking the broader comparison, attempts have been made to draw conclusions particularly from railroad bonds and real estate mortgages because both are, in the main, directly secured by material property. The line of attack by the partizan of bonds is this: About 50 per cent. (let us say) of railroad capitalization in the United States is in bonds.¹ The other 50 per cent., which is stock capitalization, is an equity upon the face of which about 6 per cent. is being earned. Assuming that stock should earn 10 per cent. upon its market value, the stock equity is worth over 50 per cent. of the face value of the bonds. Putting the fact conversely, American railroads are bonded for less than two-thirds of their value.

116. This statement of railway capitalization is unquestionably conservative, and the argument well enough as far as it goes; but of course we have no figures to prove that mortgaged real estate, the country over, has or has not a clear equity of one-third. One might find the amount of real-estate mortgages recorded within a municipal district and lay it over against the assessed valuation of the real property in that district and come to some valid conclusion as to the equity in that district; but until the time that all real property in the United States is assessed at actual value, and until the census special reports give us the total amount of recorded mortgages, one man's guess is as good as another's regarding average equity for these mortgages.

117. As a matter of equities, then, the comparison elicits small satisfaction. The *stability* of these equities is next in question; and again trustworthy figures are wanting. If an expression of opinion is acceptable, the writer believes that in this respect there is little

¹ The ratio of funded debt to total capitalization is considerably in excess of 50 per cent.

to choose between realty values and corporate property values as a whole. But a decided exception must be taken in regard to railroad and industrial equities,—to railroad because the extreme marketability of railroad stocks makes them susceptible to more acute variations in market value; and to industrial because the nature of industrial business implies extreme fluctuations in earnings. On the other hand, the equity in municipal bonds is so tremendous (usually from 90 to 95 per cent. if we may speak of the equity as the difference between the net debt and the real or even the assessed valuation) that the stability of this equity is of the highest.

118. Since the equities in railroad and industrial bonds are distinctly variable,—these securities require a greater “margin of safety” than mortgages or than most other bonds. Some time ago St. Louis and San Francisco General (now First) 5s, Wheeling and Lake Erie First 5s, St. Louis, Iron Mountain, and Southern General Consolidated, and Land Grant 5s, and Minneapolis and St. Louis First Consolidated 5s, were advertised as selling on a 5 per cent. basis, with equities of from 200 to 1000 per cent., estimated by the market value of the junior securities. At that time good Eastern real estate mortgages were paying 5 per cent. and the equity at going prices may have been 40 per cent. These facts were stated in a circular bond offering, and put these railroad bonds in a strikingly favorable light. The comparison was not just, however, for no allowance was made for the greater stability of Eastern realty values.

119. Perhaps it was about this time that an industrial bond gave an excellent illustration of the importance of stability in equities. Columbus and Hocking Coal and Iron First 5s were quoted at 91, bid in January, 1910, just before the collapse of the Keene pool in the common stock; but immediately afterward they could be bought anywhere from 25 to 40. There had been no change in the material properties of the Columbus and Hocking Company. The equity in stock value had merely collapsed,—in this case because artificially inflated.

After all has been said, probably the equities in public corporations are generally underestimated, for it is easier to remember that new enterprises are “built on bonds” than it is to realize the amount of surplus earnings that have been put back into the properties, or to recall the amount of subsequent issues of stock and junior liens, the proceeds from which improve and enlarge the plant and equipment.

120. The Hocking Coal and Iron incidents are by no means confined to bonds. Mortgages have their striking vicissitudes showing the mutable nature of equities. A 7 per cent. first mortgage on central business property at 60 per cent. of the assessed value was no uncommon thing in Seattle or Tacoma in 1890. By Eastern standards such a mortgage was a good investment, and the return was no more than capital in the West at the time demanded. But in 1895 that margin of safety was wiped out, and many an Eastern investor found himself in possession of unproductive Tacoma real estate. Yet the same sort of mortgages (with lower interest rate of course), placed in New York or Philadelphia, would have remained intact and the margin of safety would not have been even threatened.

121. *Security as Affected by Guaranty.* The guaranty is a much more dependable source of security to mortgages than to bonds. Although there are many exceptions, particularly among divisional railroad issues, the fact of bond guaranty is in itself an inference of inferior security. The guaranty for mortgages as given by a mortgage guaranty company, however, is more truly an insurance against individual misjudgment of investment or individual property hazard, by distribution of the risk among many investors, and has no natural implication of intrinsic inferiority in the mortgage guaranteed. Of the hundreds of millions of dollars in mortgages thus *insured* by the New York mortgage companies, there has been very little monetary loss to the companies, and probably none, as yet, by investors.

122. But guaranteed mortgages are too recent to have proved their worth under all possible conditions. The guaranty might prove of little value as insurance against a widespread calamity, such as a long and extreme financial depression, or a flood, or conflagration—against anything, in fact, that could wipe out real estate equities generally in the territory in which the guaranty company operates. In crises of this kind the capital and surplus of the guaranty companies might be no more than a drop in the bucket, since their contingent liabilities very greatly exceed their free assets.

123. Unfortunately, more often than not it will be found that this capital and surplus are invested in the very class of properties and mortgages, and in the very localities that have obtained the mortgage companies' guaranties. If this were not the case, but if these funds were widely distributed in marketable obligations such as bonds and other securities that are legal for insurance company

MORTGAGES

worth more if ever put to the
service. As conditions now are, it
stress the value of the guar-
antee of the face of the mortgages.
\$100,000 upon which a guaranteed
guaranty would be worth \$3,000, and
\$57,000."

point of view from which investment
showing that there is no choice between
safe channels of investment, the
can protect women and minors, and
the spoliation of funds left in
lost to beneficiaries through un-
wise investment. It is not
from fees and commissions that
the funds are placed in channels
necessary once in three or five years. Of
themselves, this is most distin-
guishing the disposal of trust funds
where the funds cannot be converted
cannot even be tampered with.

pendant upon the foreclosures of a real
deeply into the principal than the same
be pro rated among the depositors of
holders' protective committee, on the
the undertaking, the less the unit of

When we were canvassing the ele-
ment, we laid stress on the thought that
relation between security of princi-
pal. Although it is true, broadly speak-
ing, of loans, the stronger the security
payment during the life of the loan,
a much inferior grade of security
present a much superior grade of in-
terest. A most apt illustration in the relative se-
curity of mortgage interest.

of what constitutes security of interest
advisable, to confine ourselves to the
instrument. Necessity of frequent rein-
vestment in its relation to interest. To satisfy

ourselves on this point let us submit to analysis this investment element called Security of Interest.

127. If we loan money, over a period of years, we expect a rental, called interest, for its use. We desire, first of all, to be sure of getting it; secondly, to get it at certain regular intervals; and, thirdly, to get at least as much in the future as at present. If we are not afraid of being academic we can classify these qualities of the interest charge as (1) *Certainty of payment*; (2) *Regularity of payment*; and (3) *Perpetuity of rate*.

128. In respect to (1) *Certainty of payment* (certainty being used in a comparative sense), bonds and mortgages are most nearly on equal terms. This is because forfeiture of property is the penalty for non-payment of interest on mortgages and *corporation* bonds. Although there is no property security for the great majority of civil loans, and the principal does not mature on default of the interest still the high standing of civil credit, from the federal government to the assessment district, prevents unsecured civil obligations from lowering the *Certainty of Interest* maintained by bonds as a class.

If interest defaults on any collateral obligation it is recoverable at law out of the collateral. It follows, therefore, as a corollary to the equally good security for the principal of bonds and mortgages, that there is equal certainty of *ultimate* interest payment.

129. (2) *Regularity of payment* is quite another matter, and hardly less important, considering the uses to which investments are put. The payment of interest on corporate obligations is a matter of routine business and is in preparation, by the very method of keeping accounts, from the day that interest begins to accrue. The prompt payment of interest on real estate mortgages, which generally represent personal obligations, is dependent on life, health, and even memory. If payment of mortgage interest is not delayed by some accident of nature, the chances are much greater that a temporary embarrassment will suspend payment by an individual than by a corporation. Surpluses invested in quick assets, and systematic cash reserves, are protections of corporate accounting rarely employed by an individual. When, in a business crisis, a railroad or a public service corporation has to suspend dividends, or even to pay them in scrip, for want of ready cash, it is a matter of public comment.

Sometimes a corporation is obliged to default interest on its

bonds for a time, although fundamental conditions warrant belief that a resumption can be made in the future. If its obligations were floated by a bond house of standing, the house might, and very frequently does, advance the interest to those who bought the bonds of it. For the possibility of this protection of interest payments, if for no other, it is highly desirable that investors should deal with responsible principals, not with brokers, when purchasing bonds. There is no similar sponsor for the payment of unguaranteed mortgage interest.

130. (3) *Perpetuity of the interest rate* is a phase of interest that receives much less attention than it merits. We have said that, in our conception of what constitutes security of interest, it is not necessary, nor indeed advisable, to confine ourselves to the mere duration of the loan instrument. Credits, in the commercial world, are seldom really amortized; they are extended at maturity, or converted into other forms more suitable to changed conditions. Most short term loans are contracted by both parties with the purpose of refunding at expiration, either with each other or with third parties. In this continuous metabolism of credits, security of interest has to suffer, especially as regards perpetuation of the rate. In a true sense then, quite apart from the security of the respective principals, a five-year railroad note offers more security of interest than a three-year note. Extending this principle to bonds and real estate mortgages as classes of investments, bonds can assure the lender a more uniform rate because of a longer possible duration.

131. In summary, although the "certainty" of recovering defaulted income is about equal as between bonds and mortgages, security of interest, as a whole, is greater in bonds because there is greater likelihood of regularity in payment and less likelihood of change in the rate on refunding.

132. The guaranty of established and conservative mortgage trust companies is a very great assurance that mortgage interest will be paid promptly. In fact, it is the policy of these companies to contract to pay interest on the due date, with their own checks, irrespective of whether they have been paid by the mortgagor, or not. Guaranteed mortgages therefore have but one element of weakness in security of interest:—that resulting from change in interest rates due to comparatively frequent reinvestment.

133. *Fair Income Return.* It is generally conceded, even by those who are interested in making out the best case possible for bonds,

that mortgages make the better return. People who stop to think do not mean by this that the average interest rate on mortgage paper exceeds the average interest rate on bonds; but rather, that with the same degree of security for the invested principal, mortgages yield the larger return.

134. Waiving this important point for the moment, the writer raises a question equally important but generally overlooked: suppose that a bond and a mortgage each possess the same degree of excellence in *all other* investment elements; which will yield the most? The bond, unquestionably.

To answer the question thus categorically is to anticipate comparisons yet to come.

135. To return to the matter of yield, relative to security. The rate for gilt-edge real estate loans varies of course with time and place. Sound large loans on central business property in New York have been made at 3 per cent. when money was cheap. Such loans at most favorable times do not bring over $4\frac{1}{2}$ per cent. The security for these loans is about on a par with that of the better municipal bonds, which have about the same range of yield. Mortgage loans never average higher than 5 per cent. in the East or $6\frac{1}{2}$ per cent. in the West and South.

136. The return from mortgages, however, is reduced by certain costs, the extent of which will vary according to the amount of attention to the investment that the lender is able and willing to give. He may, to be sure, act for himself. He may be capable of searching the county records to see that the abstract of title has been properly drawn, and that the borrower is the actual owner of the property and that the borrower is legally competent to execute a valid mortgage, and that the instrument is binding and the lien of the character described. He may be competent to appraise the property, both as to present and future value, and to look after taxes, assessments, and insurance. But, *to make fair the comparison with bonds, the lender must be presumed to delegate to agents all attention to investment details*, since the trustee for the bonds and the vending bond house exercise all supervising functions over the bond investment. The chapter on *The Bond Houses* will develop this thought more completely.

137. For guaranteed mortgages the guaranty company exercises the sort of supervision referred to, and its usual charge for the services rendered is $\frac{1}{2}$ of 1 per cent. of the income. This is the price of the insurance, and for that freedom from care which is a great

BONDS VERSUS MORTGAGES

of a bond investment. But it is a high price to pay. It requires a return of a 5 per cent. mortgage to $4\frac{1}{2}$ per cent.

On a glance at the quotation sheets of the New York Stock Exchange he will find even among the quickly convertible railroad bonds many issues of very high grade, such as can confidently be recommended to persons dependent upon the income that will net, in normal times, from about 4.40 to more than 5 per cent. Such great issues as the Baltimore and Ohio (Pittsburgh and Erie, and West Virginia) 4s, the Rio Grande Western 4s, the St. Louis, Iron Mountain and Southern (River and Missouri) First 4s, and the Oregon Short Line Refunding 4s.¹ Some large issues of generally known, but less active bonds, both listed and unlisted, might be mentioned, which have security at least equal to that for the above bonds, but which are not of the highest class, and therefore do not enjoy a correspondingly wide sale and confidence, and consequently are not subject to such command. These may generally be had at a price to net about $4\frac{1}{2}$ to 5 per cent. Among them are the Milwaukee Gas and Power Co. First 4s, the Union Electric Light and Power Co. (St. Louis) First 5s, issues of equipment bonds on the standard gauge, and many underlying mortgage obligations of various roads.

There is still a third class of bonds, great in numbers, but of small size of issue, and of much narrower and less responsive sale, which rank in security with those of the other two classes, but may be bought at a price to net from 5 to 6 per cent. Therefore, for they are harder to sell, both at the time of flotation and afterward, since they require detailed investigation like mortgages of the same yield.

In view, therefore, of the necessary miscellaneous costs of a mortgage investment, or of the equivalent cost of independent and delegated supervision by guaranty companies, which requires an average net return to $4\frac{1}{2}$ per cent. or less, the writer is inclined to think that mortgages net more upon the investment than bonds of equal security, irrespective of any other elements of investment that bonds may possess.

The shorter *duration* of mortgage loans was seen to have

¹ The average rate of coupon interest paid on American railroad bonds has been about $4\frac{1}{2}$ per cent., but the average net return is much less. There is a better market for discount than for premium bonds.

a possibly unfavorable effect upon the security of both principal and interest, (§130) and it may likewise lessen the net return, providing, as before, we desire a *continuous* investment and have our thoughts upon that rather than upon the particular mortgage instrument. Upon the expiration of a mortgage loan it may not be possible for the lender to renew the mortgage on as favorable terms, if at all, so that he must seek another mortgage. When found, title-search and "the law's delay" mean a further loss of a month's interest to detract from the net return.

The effect of taxation on net return is a topic for separate treatment.

142. Marketability. As relating to this comparison the other investment elements may be dealt with more summarily. Bonds are the most merchantable of all long term investment or speculative securities, because they combine the virtues of negotiable instruments with the investment virtues. Broadly speaking, mortgages are unmarketable, except by chance, because they are not negotiable instruments, and have as security property units so different from one another as not to admit of classification and appraisal. The scale of bond issues, implying scattered and diversified ownership, creates competitive investment demand. There is an investment demand for mortgages as such, but respecting a single mortgage, no competitive demand. For this reason National banks, which are obliged to maintain liquid reserves, are forbidden by law to invest in mortgages. On the other hand, a large part of the reserves of Eastern banks is kept in bonds. Savings banks, which are not under the same necessity to meet demands requiring sudden liquidation of their assets, invest in both bonds and mortgages.

The briefer average duration of mortgages is a partial offset to their lack of marketability; but short term notes and early-maturing bonds are as convertible as the longer bond issues, and sometimes more convertible.

143. Hypothecary Value. Always closely associated with the quality of convertibility is the possibility of hypothecating the investment. This is because quick convertibility implies a consensus of opinion as to market price, and therefore a common knowledge of the equity over and above the temporary loan requested. Needless to say that it is comparatively difficult to borrow on a mortgage. Many a business man, who has dealt in real estate for years, does not know whether his bank would, or could loan in this way. The hypothecation of first mortgages is possible, even by savings

VERSUS MORTGAGES

It is generally costly, since the bank must make a new title search and other formalities. Its accommodations are not always, by strict law, as good as those of banks. For instance, a savings bank in Massachusetts may take as security for a loan a mortgage assigned to itself; but this is a *direct* mortgage. When becoming the assignee, the bank becomes the mortgagee and not take a mortgage as pure collateral. A mortgage, then, will usually be undertaken only when the property is sold and the mortgage cannot be sold. It will be a mortgage, as well as to sell it, only in the case where the pledged property is situated, unless the mortgage is sold through a land title company or some other brokers who have moral or legal responsibility to inspire confidence.

Comparatively obscure corporations, however, have a restricted market also, but not so restricted as banks. A bank will loan to a customer on a bond or mortgage in a general way, providing the borrower is solvent and there is a satisfactory financial statement by the borrower. A perusal of the trust deed will satisfy any prudent lender with regard to legal details. If the institution is a bank, it is not capable of loaning discreetly on a mortgage. The house of which he bought the bond will be the bond directly, or else refer him to one of the banks or companies with which they are affiliated and which are acceptable as collateral. A loan thus needs no security from the borrower except customary interest and the cost attending the transfer of funds. The bond is sold for its services and there will be none of the cost attending almost any transaction in mort-

Taxation, in reference to security investments, is of vital importance, because, where operative, it may be a return as to be a hardship.

Remember this: *Bonds and mortgages are the only form of pure long term investment. Very high interest rates which trustees are sanctioned by law to pay on equal grade, not only 4 per cent. A tax of 10 per cent on this privilege was permitted savings banks in*

... thousand leaves a dependent widow or child with a $2\frac{1}{2}$ per cent. income. It is equivalent to an income tax of $37\frac{1}{2}$ per cent. Which, then, is more iniquitous, the imposition of this tax or its evasion? For, let it be remembered that the tax on bonds is seldom paid except by those who can least afford to pay: the beneficiaries from invested funds. The evasion or oversight of a mortgage tax is difficult because of the general practice of recording real estate mortgages.

146. A study of the 48 or more codes will surprise many who think that mortgages have a general advantage over bonds in the matter of taxation. Only in Massachusetts, Connecticut, New Jersey, Pennsylvania, Indiana, Idaho, Colorado, California, Washington, and in some counties of Maryland, are mortgages exempt from tax. In New York they are exempt if an initial recording tax of $\frac{1}{2}$ of 1 per cent. is paid. If the mortgage secures a bond issue, the issue is exempt to holders within the state. In practice this recording tax is paid by the borrowers. Since the civil loans of New York State are also tax free, New York bonds and mortgages are practically on an equal footing; but since the amount of "foreign" mortgages held in the state is a small proportion of the whole, whereas the amount of foreign bonds is much greater in proportion to all bonds, mortgages as a whole have been more favored than bonds. But for the recent change see § 50, Note. The principle will hold in other states mentioned where mortgages are not assessed. But over against this is the consideration that when and where both types of securities are subject to taxation, bonds very generally escape, and mortgages do not.

147. **Freedom from Care.** One of the advantages of investments over speculations is the comparative freedom from attention which investments enjoy. But there is great latitude within the investment class in respect to this quality. Mortgages involve no little trouble. Besides the pains of original research at the time of purchase and the trouble of renewal or reinvestment every few years, there are quite a number of petty details that require almost constant attention. It must be seen that the tax bills and water bills are paid; that insurance is kept up and assessments not allowed to run too long. It must be seen that the property, if improved, is not liable for a building contract, and that the buildings are kept in repair, and that no mechanics' liens are attached for services rendered. If the mortgage interest is delayed, there must be what is fair to call "an exchange of personalities" and possibly foreclosure with resort to one's attorneys. Relief from all these petty

BONDS VERSUS MORTGAGES

by investment in guaranteed mortgages; but they are brought down to the level of the high grade bonds of the Western and Southern municipals, and the average general.

On the other hand possess, almost in perfection, the investment quality called *freedom from care*. The bondholders, nowadays almost invariably a trust company, invested with adequate authority and responsibility for the interest of the bondholders in all those particular duties imposed by the trust agreement, are a trust company liable.

Long life possessed by many bond issues, and being subject to responsible trust company supervision, they lay aside money in funded obligations where the principal remains untouched and almost unthought of through the children's children, and the interest be collected and paid than required to cash the semi-annual coupons.

In default, there is a similar, if less gratifying, freedom to act. According to the racy saying, it is not so much to be an honorary rather than an active pallbearer. Main more is gained than lost by committing the affairs to the trustee or to a bona-fide bondholders' committee.

Mortgages which have sufficient importance and dignity in the distribution of their obligations by good management will never be wound up. Therefore a prudent bondholder never come into the possession of real property through foreclosure proceedings. In the readjustment of the new securities,—probably bonds for the most part,—he remain a creditor of the company, and an investor in mortgages default in interest the mortgagee must foreclose the property at foreclosure sale, and if necessary in this event he has the care of it, and the responsibility of a speculator in real estate. In general the mortgagee's dealings as creditor and litigant cannot be compared to the annual plane that is such a desirable aspect of

variation. In the third section preceding we have seen how care made possible by the varying duration of the mortgage in general the unlimited choice,—from pres-

ently-maturing paper to perpetual loans,—is no mean advantage and weighs heavily in favor of this type of investment (§§ 130, 141).

151. Acceptable Denomination. In convenience of denomination, also, mortgages suffer by comparison. A man who owns a house worth \$10,000 wants to mortgage it for \$6,000 at 5 per cent. This might be a good loan, but he cannot “get together” with an investor who has only \$5,000. We will say that the investor with \$5,000 is unable to find a desirable \$5,000 mortgage and has to be content with a \$4,000 mortgage. He is then in the market for a \$1,000 mortgage; but a first mortgage of this size is not likely to be had on such good property, relatively, as the larger mortgage. And the division of the investment means additional incidental costs and additional care and attention. In these two illustrations both borrower and lender are inconvenienced by mortgage denomination. As to the small investor,—of the type France knows well, but America has yet to recognize: the man with \$100 to \$500 to lay aside each year in securities, rather than in the bank,—real estate mortgages do not often meet his needs; and unfortunately bonds do not, either, as well as they will ten years from now. But a few good bonds: government, municipal, and corporation, may always be had in denominations of \$100 and up. \$500 bonds are becoming quite common, especially among the loans of public service corporations. A \$10, or \$100, or \$500 bond is as safe as one of larger par value; each is merely a smaller share in the same large mortgage.

152. One great disadvantage of the inadjustable denomination of mortgages is quite generally overlooked in discussions of investment theory. The mortgage does not admit the nice distribution of investment risk which is possible in smaller units of value. If a man has only \$5,000 upon which he or his family may be dependent it may be advisable to make five separate investments of \$1,000. In this way he may protect himself by distribution of risk against a total loss of principal through his own misjudgment or through unforeseeable misfortune.

Inadjustable denomination also reduces the probability of quick conversion, for it may be easier to find two buyers with \$2,500 each than one buyer with \$5,000.

153. Potential Appreciation. There is a good deal of misapprehension as to the possibility and desirability of value-changes for investments. The topic is discussed in its general phases, elsewhere. We are concerned here with the relation of Appreciation and its

necessary correlate, Depreciation, to bonds and mortgages. The gist of the matter is well put in a circular issued some time ago by a New York banking house.

"The statement has been made that real estate mortgages are always worth par because the principal will be paid promptly at maturity; but it is obvious that the same can be said of long-time or short-time bonds, regardless of the price at which they are selling. The fluctuation in price is due either to the exigencies of others, or to temporary changes in interest rates, and need not disturb the investor, who has bought for income. We would emphasize that the investor receives the same income annually, regardless of the price at which his security is selling.

"Fluctuations in real estate mortgages are probably neither greater nor less than those of other short-time securities. But while it is doubtless true that a real estate mortgage cannot decline to the same extent as a long-time bond, neither can it appreciate. An investor in a real estate mortgage, having a few years to run might find his security maturing at a period when interest rates were very low, and he could only extend or invest at a rate materially below that which he had formerly received. On the other hand, an investor in long-term bonds, if he makes his purchase at a time when bonds are selling below their normal quotations, has the benefit of the high yield until the maturity of the security. Or, if he has funds to invest when interest rates are low and long-time bonds are high, he can easily obtain short-time securities, such as well-secured notes or equipment obligations, and replace these when the long-time securities can be obtained on satisfactory terms."

154. But appreciation, or depreciation,—to a greater extent in bonds and to a less extent in mortgages because of their respective average denominations,—may be the result of something more substantial than mere price fluctuations due to market conditions and changes in the rates for money. It may be due to changes in the value of the pledged property. From the investment point of view,—always looking first to recovery of the principal,—no matter when conversion may be necessary,—mortgages appear to have the advantage in their apparently restricted possibility for price change; but if forced to sudden liquidation, the mortgage investment is liable to severe loss because there is no demand for the paper. From the speculative point of view the owner of the mortgage is at a disadvantage, for if the value of the property increases the investment enhances the security for the loan, but through this very inconvertibility it cannot add to the principal of the investment; but if the value diminishes the security is lessened, with possible diminishment of the principal from realization under foreclosure.

The bond owner, however, although receiving only the fixed in-

come, not only benefits from the enhancement in equities, by increased security for his bonds, but he enjoys the possibility of realizing on his investment before maturity more than he put into it. The tendency of well chosen long term investments is to increase in value with time and the advantages of such an increase accrue to the bondholder, but not to the mortgage holder, except in increased security.

155. Conclusion. A summary of investment characteristics suggests that both bonds and mortgages satisfactorily fill the essential requirements of time loans as to safety of principal and interest, and as to fair net return. However, though there is little to choose between them in the investment essentials, only bonds have the highly-desirable qualities of convertibility, freedom from care, convenience of denomination, and possibility of substantial appreciation. Each of these accessory advantages has been shown to contribute to investment security in its broader interpretation, and to the total, if not to the fixed, net return. Therefore it is a defensible position that bonds are a better channel of investment for those who will acquaint themselves with the essential principles of bond investment.

CHAPTER VII

LISTED VERSUS UNLISTED BONDS

156. One of the stock opinions arising from half-truths in financial matters, which bond salesmen are obliged to combat, is this, that "listed bonds are the only kind to buy." The statement is often accompanied by a complacent, knowing air, a not-so-green-as-I-look manner, that is the more exasperating because usually unwarranted. Let us then apply our touchstone of investment virtues to bonds listed and unlisted, to see where the truth lies.

157. Of the nine or ten desirable elements in an ideal investment, only three can be advanced seriously as being affected by listing on the stock exchanges: the security of the investment, the negotiability of it, and the rate of income it yields.

158. Security. As to security, it is true that the listing committees of some of the exchanges require certain definite, informing statements concerning the companies whose obligations and paper they pass upon; and it is also true that the New York Stock Exchange requires that all bonds dealt in there should be certified to as regards genuineness by a trust company, and that the institution of this requirement was the cause of the present vogue of trust company certification; but the information necessarily possessed by any listing committee concerning the worth of its listed securities is blackest ignorance compared with the intimate knowledge any bond house must have of the condition of a company whose obligations it floats. The listing committee is handed a financial statement and brief answers to set questions. If the loan was previously underwritten by a banking house that wishes the issue listed, further information may be gratuitously forthcoming; but the committee, unlike the house, is not obligated to employ engineers, auditors, and attorneys in the interest of all concerned.

Bankers in investment securities are principals: as a rule they own the bonds they sell; stock exchanges are merely associations of agents who sell for the account of others; so it is natural that real critical scrutiny should come only from the bond houses. What possible assurance of safety, in the ordinary sense, can be found

in listing when Erie common and Southern Railway common are to be found on the New York board, and Standard Oil is not; and when Wabash Pittsburg Terminal Second 4s (which sold from 4 to 11½ cents on the dollar in 1910) are listed, and Massachusetts 3½s are not, and when in fact the only state loans, except of New York, come from south of Mason and Dixon's line.

Thus far, then, we may decide that stock exchanges sometimes afford assurance of authenticity and validity (which are real problems only in civil loans), but not of the safety of an investment, as such. We have, however, considered security in a broader, but no less real sense. No matter how active may be the market for an issue, the more haste in selling the less the price obtained. The cost of speed may be from one-eighth to several per cent. But to a greater or less extent the markets of the larger exchanges are "free markets," and, barring manipulation, prices move in response to supply and demand. But the market created by responsible bond houses for their "specialties" is artificial, and governed more by considerations of policy. It is likely to be unnaturally favorable to those who have bought the bonds of the house that has fathered them, but very unfavorable to all others. Although unprovable, it is probably true that the average margin between "bid" and "asked" of listed bonds is much less than half that of unlisted bonds, and the loss due to the "higgling of the market" correspondingly less.

159. Negotiability. Negotiability, in its two aspects of marketability and hypothecary value, has much more of a bearing on the subject. It is unquestionably true that the average listed bond can be more readily sold or hypothecated than the average unlisted. An examination of the reasons may assist some in the choice of their purchases.

160. In the first place listing does not create a market. In about 156 railroad issues listed on the New York Stock Exchange (or approximately 21 per cent. of all) there were no exchange transactions at all in 1910. Nor were there sales in about 15 listed public service and industrial issues, or approximately 13 per cent. of all. In a great many other issues there were sales of only one, two, or three bonds during the year. Surely a bond cannot be said to be fairly active, with probabilities of a ready market at close to "going" quotations, unless the sales per week average at least 10 bonds of thousand dollar denomination. In 1910 there were about 143 issues, or approximately 17 per cent. of the total, that were thus active.

161. It is only fair to say that the market for many inactive issues is stronger than indicated by the volume of transactions. Some divisional railroad issues of highest merit are not dealt in because they are laid away in strong boxes as investments to be held till maturity. On the other hand, some issues are not sold on the exchange because nobody will buy them.

162. Although listing does not create a market it facilitates transactions and thereby encourages marketability. People are now familiar with the mechanics of exchange transactions; they know to whom to apply when they wish to buy or sell exchange bonds; they know what the brokerage cost of all dealings will be, and they know they can ascertain at any time the price realized by the latest exchange sale, and the highest or lowest prices over a period. These are genuine advantages not to be despised.

163. Because there are genuine advantages enjoyed by listed bonds one should not overlook the fact that listing and marketability do not stand in relation of cause and effect, but rather that both are the effects of a common cause, namely the size and reputation of issues. Mere bulk in an issue implies the economic importance of the obligor company; it implies comparatively wide distribution among investors, and a general knowledge of the issue and a growing demand for it if the security warrants. It may be worth while to list such bonds simply because they are likely to be dealt in extensively. Exchanges exist primarily for the purpose of making commissions. A study of listed bond sales will show an intimate relation between the size of the issue and the volume of sales. The underlying railroad divisional bonds are now comparatively inactive. The great blanket railroad refunding mortgages (all but three or four of which are listed at New York)¹ show comparatively heavy transactions. The relation, then, that exists between size and volume of transactions is the relation that exists between size and listing.

164. *Current Versus Uncurrent Bonds.* Therefore, so far as a ready market is concerned, the question should not be that of listed versus unlisted bonds, nor quite even of active versus inactive, but rather of *current* versus *uncurrent*, i.e., the question as to whether or not

¹ Three of these exceptions are the Duluth, South Shore and Atlantic Consolidated 4s (of which all the outstanding bonds are owned by the Canadian Pacific), the New York, Ontario and Western General 4s, and the Wisconsin Central First and Refunding 4s.

on short notice one can purchase or sell a security at somewhere near the same price. In other words, whether or not transactions are numerous, the bid and asked price of current bonds must be close together *and hold good for the amount of bonds one has to buy or sell*. It is merely circumstantial that a majority of such issues are listed.

Then the buyer who throws up his hands at unlisted bonds usually makes one of two errors: Either he calls what he wants by the wrong name, or else he buys what he doesn't need. If current bonds are what he wishes he may get them of the curb, or at the bond counter, as well as on the board. But if he buys for investment (the purpose for which funded loans exist) may he not ask himself whether for his needs currency is worth what it costs? He is much more likely to say, "If I buy this inactive bond for 95, I may have to sell it for 90 to get rid of it,"—than, "If I buy this active bond for 95 which I could turn around now and sell again for 94½, including commissions both ways, I shall be paying 5 for activity and 90 for investment value."

165. This is no plea for unlisted, or even for uncurrent, bonds. It is merely an appeal for the application of sound investment principles to all bond buying and selling. The fact that there are a thousand financial houses doing a general bond business¹ in the United States and Canada is sufficient evidence of the demand for unlisted securities. The commissions on all exchange transactions would barely pay the postage and stationery of these houses, if it would do that. It is fitting that the fallacy of listed bonds, as such, be exposed in order to emphasize the desirability of analyzing one's investment needs before buying, since every investment merit has to be paid for, and lessens the net return that is the primary object of investment as distinguished from safe deposit.

166. **Hypothecary Value.** In making loans upon collateral, other conditions enter in, which give listed bonds a decided advantage. A bank has not the time or personal interest to investigate, as a purchaser should, the character of collateral security. From the nature of commercial banking, personal credit is the specialty; collateral credit or credit instruments are secondary. The national bank and the trust company look upon listed securities as authentic; reference is easy to current quotations as the basis for appraisal and loan. Therefore listed securities are, in general, more accept-

¹ There are over four thousand bond offices in America.

UNLISTED BONDS

and moves along the line of least resistance thinking to do.

Our argument, but the fact remains and elastic condition of the New York general subservience to the quotations of does not receive due consideration. The banking system of call loans on existing stronger and conditions will surely the holder of uncurrent bonds must expect the merits of the loan he desires before he would have to lay the merits of a real board of a savings bank. Relief from said for in investments as in transportation. The bulk of bonds purchased by national banks should be current,—perhaps listed. In mean much to them. But why should the or the trustee, or the private investor who shall buy bonds or real estate, pay the price has no grievance if it takes him six months business block at a fair price. Simply because represent no tangible property he should not ability with investment merit.

need of most people and institutions which is the highest return compatible with good bonds meet this requirement.

Bond Houses as an Investment Exchange. Problem of the listed-bond fallacy is this: the stock-market and bond-market conditions is not In several respects stocks, unlisted and unmarketable as listed. Stocks as a class sadly need that listing achieves; and as for salability, such as those of the New England banks and times, in liquidation, for lack of a broader are unlisted and uncurrent stocks interest not to such an extent, bonds. The great bond houses, which has no like in any European exchange in itself, reaching out with travelling representatives over the more settled States and Canada. This system, with the aid fulfils for most purposes the legitimate exchange. There is of course no similar

system for stocks—no federation of houses, handling uncurrent and unlisted, *as well as* listed stocks, that through the medium of an extended clientèle and a highly developed street brokerage business puts buyer and seller in reasonably quick communication. Unlisted stocks, therefore, are not on the same plane of convertibility as unlisted bonds.

171. So satisfactory is this system of bond-interchange that over 90 per cent. of transactions in *listed bonds* (it is estimated) take place outside of the exchanges. If one wished to buy or sell People's Gas Light and Coke Company Refunding 5s he would probably do slightly better with a well-known Chicago bond house than on the New York or Chicago Exchanges; and who would purchase our national public funds on the New York Exchange without first consulting the quotations of a bond house specializing in United States Governments? In New York there seemed little prospect of immediate business in February, 1908, when 81½ was bid for Chicago and Eastern Illinois Refunding 4s and 92½ was asked. Examine the circulars of the big bond houses and note their holdings of bonds listed in New York: Chicago, Burlington, and Quincy (Illinois Division) 3½s, New York Central Refunding 3½s, Lake Shore First Mortgage 3½s, etc., a fair indication of where the real market for most listed bonds is.

172. Another source of misunderstanding is the fact that all exchange business is done at the uniform commission of ½ per cent., whereas a seller of bonds in the open market believes, with good reason, that his house sometimes makes several times this amount in brokerage. Consciously or not the larger commission is begrudged. The very much greater effort and expense necessary to market inactive unlisted issues are not appreciated. In a real estate transaction it would readily be perceived and acknowledged that it is better to pay an agent 5 per cent. to sell a house worth \$20,000 at its value, rather than to pay another agent 1 per cent. to make a quick sale of the same property for \$18,000.

173. *The Unreliability of Some Listed Quotations.* Although exchange quotations, especially at New York, are a very convenient reference for purposes of appraisal, hypothecation, and sale, they are not always to be trusted, especially as the basis of value for large amounts of bonds. Suppose that an institution held \$500,000 of a certain railway loan which was 93¼ bid 95½ asked. The inexperienced inference might be that these bonds would sell for 94 or thereabouts. It might well be, however, that \$100,000 bonds were offered

at 95½ and only three bonds were bid 93½ and that only a handful were wanted between 93½ and 91½. As a true basis for valuation or sale how does listing help these bonds? They might as well be part of a big municipal issue, that offered for sale will seek its investment price level with facility if offered direct to bond houses that do an institutional business.

174. Manipulation of one sort or another occasionally has its bearing on quotations. Some years ago Lake Street Elevated 5s were 87 bid on the Chicago Exchange. On the appearance of two bonds for sale at that price the quotation vanished in thin air and no demand materialized until the bonds were offered down 10 or 12 points. A sale was finally effected off the board, presumably in order not to hurt the feelings of banks that may have been loaning 75 cents to the dollar on them.

The two great issues of the American Telephone and Telegraph Company are listed on both the Boston and New York Exchanges. In the Spring of 1908 millions of them were still in the hands of the underwriters. For a while it was then possible to purchase them on the Street for about three-quarters of a point less than on the board. One who is familiar with the flotation of listed railroad issues knows that they too are not always left to seek their natural investment level.

175. Conclusion. The not uncommon preference for listed bonds, therefore, is often founded on misconceptions. Listing would always be desirable if it did not cost; but except in an indirect sense there is no added security from it. For hypothecation fairly marketable bonds of quality, whether on the board or not, will serve. If an instantaneous market is the prime consideration, choose an active listed bond; but be sure it is active. For ordinary investment purposes, however, whether buying or selling, the quotation sheet may be ignored; the real market is among the bond houses. Listed bonds are not necessarily current; current bonds are not necessarily listed. And neither current nor listed bonds are necessarily the most desirable—at the price.

CHAPTER VIII

THE CLASSIFICATION AND DESCRIPTION OF BONDS: ACCORDING TO THE CHARACTER OF THE OBLIGOR

176. One who seeks, in a scholarly temper, to classify and describe the phenomena of funded debt, is met with the obstacles and perplexities that beset the course of any scientific investigation of scope. For merely practical purposes, the possible divisions of material are limited only by the concepts and terminology already established by business uses. For instance, as bonds are bought above or below par they are *Premium* or *Discount Bonds*; as government issues sold at home or abroad they are *Internal* or *External Loans*. Even the very color of the indenture can give us the *Blue Bonds* and *Brown Bonds* of South Carolina.

177. **The Four Schemes of Classification.** But apart from these accidental and occasional divisions there are four schemes of classification of sufficient importance and extent to warrant development; for the full title of almost every bond is derived from some or all of these four; and the possible number of classes and titles of bonds is limited only by the possible combinations of names from those four schemes of classification. Bonds are divided, therefore:

I. According to the character of the issuing corporation.

II. According to the character of the security for the bonds.

III. According to the purpose or function of the issue.

IV. According to the conditions attending payment of principal and interest.

I. **Classification According to the Character of the Obligor.**

178. The most thorough-going classification—that which divides the subject best for study from the legal, economic, and financial standpoints—is according to the character of the issuing corporation, or obligor.¹ Therefore the second and third parts of this book are devoted to *Civil Loans* and *Corporation Loans*, respectively, and

¹ In one class of bonds described in these pages (Residuary Estate Bonds) the obligor is not a corporation but an individual.

70 CLASSIFICATION AND DESCRIPTION OF BONDS

the succeeding chapters deal, for the most part, with the types of bonds as derived from this scheme of classification.

City Loans	Government Loans	United States Bonds	{	City Bonds
		Bonds of Dependencies		
		Territorial Bonds		
		State Bonds		
	Municipal Loans	Municipal Proper	{	Bonds of Incorporated Towns
	Transportation Bonds	Joint-Municipal	{	County Bonds
		Harbor Bonds		
		Steamship Bonds		
		Ferry Bonds		
	Public Utility Bonds	Express Company Bonds	{	Parish Bonds
		Interurban Railway Bonds		
		Street Railway Bonds		
		Gas Bonds		
	Manufacturing Bonds	Electric Light Bonds	{	Township Bonds
		Water Bonds		
		Water Power Bonds		
		Refrigeration Bonds		
	Irrigation Bonds	Refrigeration Bonds	{	Borough Bonds
		Refrigeration Bonds		
		Refrigeration Bonds		
		Refrigeration Bonds		
	Levee Bonds	Refrigeration Bonds	{	Precinct Bonds
		Refrigeration Bonds		
		Refrigeration Bonds		
		Refrigeration Bonds		
	Drainage Bonds	Refrigeration Bonds	{	Assessment Bonds, i.e. Bonds of Taxing Districts
		Refrigeration Bonds		
		Refrigeration Bonds		
		Refrigeration Bonds		
	Irrigation Bonds	Refrigeration Bonds	{	Bonds of Incorporated Villages
		Refrigeration Bonds		
		Refrigeration Bonds		
		Refrigeration Bonds		
	Levee Bonds	Refrigeration Bonds	{	County Bonds
		Refrigeration Bonds		
		Refrigeration Bonds		
		Refrigeration Bonds		
	Drainage Bonds	Refrigeration Bonds	{	Parish Bonds
		Refrigeration Bonds		
		Refrigeration Bonds		
		Refrigeration Bonds		
	Irrigation Bonds	Refrigeration Bonds	{	Township Bonds
		Refrigeration Bonds		
		Refrigeration Bonds		
		Refrigeration Bonds		
	Borough Bonds	Refrigeration Bonds	{	Precinct Bonds
		Refrigeration Bonds		
		Refrigeration Bonds		
		Refrigeration Bonds		
	Assessment Bonds, i.e. Bonds of Taxing Districts	Refrigeration Bonds	{	Assessment Bonds, i.e. Bonds of Taxing Districts
		Refrigeration Bonds		
		Refrigeration Bonds		
		Refrigeration Bonds		

Some words in explanation of this partition will not be out of place. The partition is open to dispute,—as always. The writer has never seen the exact classification here presented. The distinction between City and Corporation Loans cannot be made. City Loans are supported and acquitted by the City. Corporation Loans are supported and acquitted by the Corporation. The word Corporation is a very necessary factor of safety. Corporation Loans are supported and acquitted by earnings from operation. The word Corporation is a mortgage upon property or collateral. The word Corporation is generally debentures; corporation loans are generally debentures. Corporation Loans are also corporation loans,—the word Corporation is used in this country the word corporation. The word Corporation is used in this country the word corporation. The word Corporation is used in this country the word corporation.

180. As each species of bond is taken up in the proper place, its order and relation to its fellows will be fully disclosed. There is no subsequent reference, however, to *Transportation Bonds* as a subdivision. The characteristics are few that bind transportation companies and their obligations, as a whole. *Interurbans*, to be sure, are slowly uniting *Railroads* and *Street Railways* in a common service; but the security characteristics of *Steamboat*, *Ferry*, and *Express Companies* are not so unified. Under the Railroad Rate Law, however, even the Express Companies are classed as common carriers and are subject to the Interstate Commerce Commission. Otherwise their obligations might be more properly classified under "Industrials and Miscellaneous." It will be understood, then, that *Transportation Bonds* constitute a new, and still loosely united group, and the line of demarcation between it and *Street Railway Bonds* of the Public Utilities group is merely the distinction between companies that are federally supervised and those that are regulated by franchise and ordinance.

181. *Railroad bonds* are usually given the position in the scheme here occupied by Transportation bonds, and they well deserve the prominence. But since there is a perceptible tendency to recognize the more logical classification, it should receive encouragement. *Interurban Bonds*, in these pages, are treated with *Street Railway Bonds*, since there are not sufficient data accessible concerning the former to warrant a separate chapter. *Express Company Bonds* are not discussed at all, since they are not of sufficient number or importance in the investment field. Other omissions have been mentioned in the Preface.

182. *Reclamation Issues*, in the *Industrial and Miscellaneous* section, may be a strange term to some; but there is sufficient unity within the group, as will be seen by reading the chapters so entitled, to justify the appellation, which to be sure is getting to be fairly common among those who are in touch with Western bond finance.

The bonds of many kinds of companies are not included within the list; but the groups are sufficiently comprehensive as they stand, to make easy further classification with reference to the obligor.

CHAPTER IX

THE CLASSIFICATION AND DESCRIPTION OF BONDS: ACCORDING TO THE SECURITY FOR THE BONDS

183. The second scheme of classification is still less conclusive because exceptions to the divisions are very numerous, and it is often hard to decide whether the title of a bond (viz. Improvement Mortgage Bond) is more significant of security or purpose.

184. *Simple Obligations.* It will be observed that in this second classification, also, the main division is twofold: into *Simple Obligations* and *Reinforced Obligations*. The commoner appellations "*Unsecured*" and "*Secured Obligations*" seem hardly inevitable to express the division. On their face they seem to imply less security for the first division. But the contrary is the case: it is because of the superiority of the first class *as a class* that its obligations can be floated without guaranty or pledge of specific property; for in this class of Simple Obligations *Civil Loans* (both government and municipal debentures) greatly preponderate in amount and importance over *Corporate Debentures*. Ordinarily it is when a municipality or its obligation is weak, that it offers lien security. Special Assessment Bonds and Irrigation District Bonds usually pledge the property benefited. The principle applies, in a measure, to corporation issues also. A mortgage bond is almost always better than a corporate debenture of the same company; but few weak companies can successfully float debentures.

185. *Corporate Debentures.* In this country, although not necessarily abroad, the word *Debenture* is the generic term for all forms of unsecured corporate obligations. Formerly debentures, with us, were sometimes secured by property; and the term *Mortgage Debentures*, was commonly used for funded loans collaterally secured. But the growing recognition of a discriminating terminology is limiting the use of *debenture* as aforesaid, in spite of the fact that there is no ground in etymology for the restriction.

186. To the word Bond, custom has given the prerogative of representing all subdivided interest-bearing contracts for the future payment of money that are drawn with formality, whether they are

Simple Transactions	Civil Loans	Certificates of Indebtedness		
	Corporate Debentures	Plain Bonds Notes Debenture Income Bonds Preference Income Bonds Receiver's Certificates		
Enforced Transactions	Guaranty Security	Assumed Bonds Guaranteed Bonds Endorsed Bonds Stamped Bonds Joint Bonds	Paper Collateral	Collateral Trust Bonds Railway Trust Bonds Collateral Notes Collateral Mortgage Bonds, or Mortgage-Collateral Trust Bonds First Mortgage Trust Bonds Collateral Income Bonds Certificates of Beneficial Interest Stock Trust Certificates, or Trust Certificates, or Stock Interest Certificates Residuary Estate Bonds
				Car Trust Certificates Car Trust Bonds Equipment Bonds
	Lien Security	Lien on Person- ality	Rolling Stock	Sinking Fund Bonds
			Funds	Municipal Mortgage Bonds Real Estate " " (Railroad) Real Estate Bonds Land Grant Bonds Farm Mortgage Bonds
			Property	Divisional Bonds Extension " " Refunding and Extension Bonds Purchased Line " " Bridge " " Ferry " " Dock " " Wharf " " Terminal " "
			Mortgage Incidence	Prior Lien Bonds Underlying Bonds Overlying Bonds Senior Issues Junior Issues First Mortgage Bonds Refunding First Mortgage Bonds First Refunding " " First and Refunding Mortgage Bonds Consolidated Mortgage Bonds Consolidated and Refunding Mtg. Bonds Consolidated First Mortgage Bonds First and Consolidated Mortgage Bonds First Consolidated " "
	Lien on Realty	Mortgage Priority		General Mortgage Bonds General First Mortgage Bonds General and First Mortgage Bonds First Lien and General Mortgage Bonds First General Mortgage Bonds Unifying Mortgage Bonds Mortgage Income Bonds Second and Third Mortgage Bonds Second Ref'd'g. Consol., & Gen. Mtg. Bonds Improvement Mortgage Bonds Debenture Mortgage Bonds Mortgage Debentures

secured or unsecured, whether the interest is imperative under all conditions, or not, as in the case of Income Bonds.

187. The technical strength of almost all corporation debentures, except Receivers' Certificates, depends on the duration of the loan and on the amount and stability of equities in assets and earning power over and above prior liens and charges. If these equities are sufficient during the continuance of the loan, interest charges will be met, and if they are sufficient at maturity, the company will have a basis of credit for refunding that part of the issue which has not previously been amortized.

Present equitable assets protecting debentures may be conserved, as in the case of the Chicago, Milwaukee, and St. Paul Debenture 4s, by express agreement on the part of the obligor that no new mortgage shall be created without securing the debentures under it, equally and ratably. The trust agreement for the American Tobacco 6s and 4s is still stronger in its protective measures. Although these loans are not secured by mortgage on property, they are first and second charges, respectively, on all the company's properties, income and profits, now and hereafter, to which any subsequent mortgage loan would be subject.

In want of lien security or a trust agreement such as that mentioned for debentures, there is no recourse to foreclosure proceedings. The bondholder is merely a preferred creditor. He may resort to proceedings under the contract, either to have a receiver appointed or to obtain a judgment and to levy execution; but this is all he can do.

188. *Certificates of Indebtedness* are the simplest of the several varieties of debentures. They are sometimes issued by states—Virginia, for instance—and then may be merely an expression for interminable loan. When issued by municipal or private corporations, on the other hand, they are likely to be *temporary* in nature, and of special denominations to suit predestined uses, such as the deferred payment of road and building contracts. Among municipal debentures Town Warrants, and their kin, are somewhat analogous Certificates of Indebtedness. The English call their *interminable* municipal loans "Corporation Stock," and their interminable company loans "Debenture Stock."

189. *Plain Bonds* is a homely term, fallen somewhat into disuse, for debentures of the pure type: i.e. those without reinforcement of lien, or even sinking fund. The Boston and Maine has adopted this term for its debentures. Plain Bonds would differ, if at all,

from Certificates of Indebtedness, only in stricter conformity with bond usage respecting denomination, etc.

190. *Corporation Notes*, in bond parlance, are to be distinguished from ordinary commercial notes only in respect to formality in the drawing. The title is reserved particularly for debentures of short duration, and for those that have dispensed with the formality of an indenture under seal. The New York, New Haven, and Hartford Debenture 4s of 1956 could, with propriety, hardly be termed Notes; but the Debenture 4½s of May, 1911, and the 5s of 1909-1912 are properly so called. It is an undue extension of the word Note, accounted for by its recent popularity, that the 10-year secured obligations of the Deepwater Tidewater Railway Company are called Notes. The Tidewater notes in turn suggest another fact, that secured notes more often have, as pledge, collateral securities than direct mortgage. The Pennsylvania 3-year 5 per cent. notes of 1910 have been among the most prominent of these collaterally secured issues.

During the past few years short term notes have been the resort of companies wishing to obtain funds at times when money rates would not permit the economical issuance of long term, low interest bearing securities. It is usually the intention to provide for the payment of these notes at maturity with Refunding Bonds. If the money market has not improved sufficiently to warrant this, the notes may be extended, or new notes issued to take their place.

Other things being equal, a company's short term notes are a safer investment than its long term debentures, for the equities in assets and earnings can be predicted with greater sureness for a short than for a long period.

191. *Debenture Income Bonds* is the full title for a class of obligations commonly called *Income Bonds*, but it cannot be conveniently dropped because not a few income bonds have some sort of mortgage security for the principal—generally a junior mortgage, although, as the very name implies, debenture income bonds have no lien security for the principal, yet the interest—up to a maximum rate of, say, 5 per cent.—may be a lien on the net earnings and probably on the net income, if earned. Income bonds are cumulative or non-cumulative, like preferred stock (which they resemble), depending upon whether a default on all or any part of the interest one year shall or shall not be made up another year when the interest has been earned. Income Bonds take precedence over all classes of stocks, for although both are liabilities, only the bonds are obligations.

192. Sometimes Debentures or Junior Mortgage Bonds are payable, as to interest, during the first few years of life only when the income has been sufficient to earn the interest. During these years they are Debenture Income or Mortgage Income Bonds, although it is quite likely that they will be called by other names.

193. *Preference Income Bonds*, or briefly, *Preference Bonds*, is sometimes used as synonymous with Income Bonds, but more descriptively, when there are two or more series, like First, Second, and Third Preferred Stocks. The interest on Preference Income Bonds is paid on each series as earned, in the order of the series. Perhaps the best illustration among American railroad bonds are the First, Second, and Third Preference Incomes of the Central of Georgia Railway.

194. It is evident that the holders of Debenture Incomes of any type are often at the mercy of the directors. Railroad accounting, especially that of intra-state roads, can make the worse appear the better reason. He was a fool or a knave who first said that figures cannot lie. A member of a Bondholders' Protective Committee for one of the railroad income issues now in default says that, to freeze out the income bondholders, the road in question has been badly mismanaged and expenses have been run up to 90 per cent. of earnings. This, of course, left no revenue to be applied to the income bonds, so that the holders have sued for their interest. These suits have been tried in the lower and the higher courts and have in all cases been successful.

Interest on the incomes has been withheld on purely technical grounds. The question at issue is whether the profitable parts of this company shall be included in reckoning earnings. For instance, the company owns a steamboat line, from which the earnings are about \$500,000 a year net. Inasmuch as the interest on the First Incomes is only \$200,000 when paid to the full 5 per cent., it may easily be seen that the charge could be met. But the company's officials maintain that this steamboat line is not an integral part of the system. The courts have finally decided that it is such a part of the system that the railroad must apply the equity of the steamship company to the payment of the interest of the income bonds.

195. *Receivers' Certificates* bring us to the opposite extreme of safety. If Debenture Incomes are the weakest possible form of corporation bond, Receivers' Certificates are perhaps, as a class, the strongest, although "unsecured." This is because of their origin

in necessity and law. They are issued by the receiver, at the order of the court, in order to raise money necessary to the continuance of some form of public service, the cessation of which would be contrary to public interest and policy.

If for no other reason, to make them successful instruments for raising money under the necessarily unfavorable circumstances, they have precedence in payment over all other funded obligations; but they rank second to wages and supplies, to all necessary current expenses, and to mechanics' liens. If the certificates are not paid during receivership, they are assumed by the railroad company on reorganization.

196. Reinforced Obligations. There are two ways by which the original simple obligation of a bond may be modified or reinforced: by additional pledge of word, or by pledge of property. An additional pledge of word is a guaranty and a pledge of property is a lien. Let us deal first with the guaranty.

197. Guaranty Security. There is very general confusion as to *Assumed* and *Guaranteed* Bonds. In the acquisition of one company by another, very probably it will be found that the purchased company had bonds outstanding on its property. This is most commonly the case in railway consolidations. If the purchased company loses its corporate identity,—“*non est*,” as the law says,—then the bonds become the *direct* obligation of the purchasing company. They are assumed precisely as the mortgage on a house is assumed by the man who buys the house. If the assumed bonds were mortgage bonds, the *collateral* credit, the mortgaged property, remains the same. It is the *personal* credit that has changed.

198. If the consolidation is merely partial, and the purchased company still maintains a separate corporate existence, then the personal credit may remain unchanged, but the bonds may be strengthened by the guaranty of the holding company. In this case they are not assumed. The terms of the guaranty may be on the bonds themselves or in a separate document. Sometimes, after issuance, the bonds will have placed upon them the name of the holding, or some other interested company. A guaranty is implied thereby and is enforceable at law, just like an ordinary indorsed note. These are called *Indorsed Bonds*.

199. The term *Indorsed Bonds* is extended to include another class. Any writing foreign to the text (whether or not in the nature of a guaranty) which is found upon credit instruments that are formally drawn, may be a hindrance to their hypothecation and

78 CLASSIFICATION AND DESCRIPTION OF BONDS

sale. Such writing brings the paper within the category of *Indorsed Bonds* by the rule of the New York Stock Exchange that "Coupon Bonds" issued to bearer, having an indorsement upon them not properly pertaining to them as a security, must be sold specifically as "Indorsed Bonds" and are not a delivery except as "Indorsed Bonds."

Bonds, for instance, secured by mortgage on real property within New York State, on which the mortgage-recording tax of $\frac{1}{2}$ of one per cent. is paid, will have that fact *indorsed* or *stamped* upon them, and under present ruling they will not be a good delivery.

200. Very suggestive of indorsed securities, but with wider sphere of application, are *Stamped Bonds*. Stamped across the face of the instrument may be the following: "Subject to provisions set forth on back thereof." The provisions mentioned may be a digest of the agreement and supplemental mortgage (if any), that become effective on acceptance of the bond by the purchaser. The agreement may relate to the establishment of a sinking fund, to the disposal of unissued numbers, or to any other change in plan to benefit the loan. Ordinarily the trust company that acts as trustee will certify to the authenticity of the indorsement.

But paper may be stamped for other purposes than reinforcement of security. Of itself the stamping merely implies an addendum. The temporary receipts for the New York Telephone Co. 4½s of '39 were stamped with late but necessary information regarding coupons and accrued interest. Naturally Extended Bonds are very often stamped bonds.

201. There is still another sense in which we may speak of stamped bonds. Bonds that may be subject to a stamp tax or a tax the payment of which is indicated when a stamp like that for postage is affixed, are Stamped Bonds when the tax is paid.

202. In purchasing any form of *Guaranteed Bonds* the two main considerations are (1) that the pledged property is sufficient security in itself, for the payment of the bonds, with interest, and (2) that the form of the guaranty is such as to compel the guaranteeing company to meet any deficiencies on the part of the primary obligor by payment of the amount of these deficiencies to the trustee for the bondholder.

203. In the upbuilding of the great American railroad systems the status of the bonds of merged and subsidiary companies has had a thorough trying out. Experience has proven that guaranties have not always been enforceable against the makers, because the

guaranties stipulate no definite remedy in case of default. If all goes well the guaranteeing corporation will never be directly liable. But suppose that a corporation which has guaranteed bonds bearing interest January and July should go into the hands of a receiver in February. The issuing corporation fails then also. The *direct* obligor cannot default till July. The guaranty cannot be a *fixed* liability till July. It is merely a *contingent* liability: a contract. The receiver has a right to affirm or disaffirm contracts. He can disaffirm this guaranty. If, however, the bonds had been assumed, the liability would have been fixed, and the receiver could discharge it only by paying. The bondholders would then have the actual mortgaged property and be entitled to rank pro rata with the general creditors of the assuming corporation. We need not go into the question as to whether the receiver ever could be held to the guaranty if it had been given expressly in part payment for a lease. Our purpose is merely to show the inferiority of Guaranteed to Assumed Bonds.

204. Guaranties are by no means confined to railroad companies, or even to private corporations; municipalities sometimes, though not frequently, guarantee or assume the bonds of corporations like water companies, which they take over for municipal operation or ownership, or the securities of which they wish to strengthen for market purposes.

205. Guaranties of bonds are sometimes assumed. If through physical merger Railroad A absorbs Railroad B, which has guaranteed bonds of Railroad C, then Railroad A assumes the guaranties of the bonds of Railroad C.

206. Guaranty, like registration, may apply to the principal of bonds, or to the interest, or to both. Columbia, South Carolina, guarantees the interest of \$200,000 Canal bonds, but the Columbia Water Power Co. is responsible for the principal.

207. An interesting illustration of the fact that security of principal, and security of interest are not the same, may be cited in connection with the guaranty. Four or five years ago one of the strongest national banks in New England guaranteed by indorsement on each bond the payment of the *principal sum, at maturity*, of an issue of about a quarter of a million dollars of bonds of a promotion company. The unsophisticated investor would naturally suppose that if the strong national bank thought well enough of the issue to guarantee the payment of the principal at the maturity date, there certainly could be no question about the in-

DESCRIPTION OF BONDS

The guaranty failed to state that the proceeds of the sale of each bond a sum at 3½ per cent., to equal the principal due. Rumor has it that although this is the Controller of the Currency disallowing practice.

as a dependable addition to lien that on default, payment of both principal and immediate and direct obligation of the

default by the subsidiary company is most that the major company itself is in trouble; business conditions probably affect them both. understanding of various claimants if the system no receivership? Even holders of debentures of guaranteed securities as far as the parent and for the former are preferred and the latter The claim of the debenture obligations of the and Hartford Railroad would take preference of preferred shares of the New England Investment Company, which are guaranteed by the or the owners of the Debentures are first preference general income of the road; but the owners investment shares would merely share on equal with general creditors after the debenture holders

and on the other hand, take their place with the system according to priority of lien, etc.; and issues may have been guaranteed prior to the new bonds, those assumed have the preference

of interest such as exists where two or more the same bridge or terminal station gives rise guaranteed. Thus the Boston Terminal Company are to be sure a first mortgage on its lands in addition they are jointly guaranteed by the and Hartford, the Boston and Albany, the and Providence, and the Old Colony insurance is had when the guaranty is both when each guaranteeing company is held the whole amount.

211. Joint Bonds, in the field of funded debt, correspond to the joint promissory notes of the commercial world. These bonds received greater prominence, as a class, on the issuance by the Great Northern Railway and the Northern Pacific Railway, of their joint Collateral Trust 4s, secured by the stock of the Chicago, Burlington, and Quincy at a valuation of \$200 per share. In this instance the security is triple: the entire loan is the direct obligation of each railroad, and there is the pledge of the collateral as well. There are two credit contracts and one collateral contract.

212. Joint Bonds usually are the "joint and several" direct obligations of two or more companies. They may be simple debentures, or collateral trust loans or mortgage loans. They may be issued by any types of private corporation. A mining issue to be noted is the Norfolk and Western-Pocahontas Coal Co. Joint 4s of 1941. They are the direct obligation of the Norfolk and Western Railway Company and the Pocahontas Coal and Coke Co., but as between the two, the liability is in the Pocahontas Company. The lien security is a mortgage on coal lands. In the case of the C. B. & Q. Joint 4s, each of the issuing roads guarantees the fulfilment of that part of the obligation undertaken by the other. Joint bonds should be distinguished from issues with joint guaranty.

213. Lien Security. In contrast with the additional security furnished by guaranty, which rests on personal credit, is the form of security furnished by lien, which rests on the segregation of specific assets, against which the creditor can satisfy his demands in case the personal credit of the obligor is not sufficient.

214. But since in business practice default in any sort of corporation loan, whether guaranteed or not, will in all probability have to be satisfied, ultimately, out of the pledged property, the first step in investigating a valid lien is to appraise the property. Even if, as a measure of expediency, the obligor company which defaults on its mortgage obligation is reorganized, without foreclosure proceedings, the readjustment of its obligations will be on the basis of property value and priority of claim thereto.

215. Bonds with lien security are divided, according to the nature of the property mortgaged, into bonds secured on *personalty* and on *realty*. The *personalty*, in turn, that commonly offers as security for bonds, is *paper collateral*, *rolling stock*, and *sinking funds*.

216. Lien on Personalty. All funded issues that have as their principal reinforcement, not a direct mortgage on real property,

82 CLASSIFICATION AND DESCRIPTION OF BONDS

but the deposit in trust of paper security, are properly called *Collateral Trust Bonds*.

They come into being in this way. A corporation, owning or in control of subsidiary companies or properties, may for reasons innumerable, not wish to dispose of either the shares or bonds of these subsidiaries. For instance, the short term note of a big railroad system of the Middle West, secured by the first mortgage bond of a new division in Louisiana, may sell for a better price than the divisional bond itself, as the direct obligation of the unknown subsidiary company, even if guaranteed by the parent company. Therefore railroad companies make loans in their own name, and in lieu of a direct mortgage pledge the securities of their subsidiaries.

217. The investment worth of *Collateral Trust Bonds* varies (1) according to the credit of the issuing corporation, (2) according to the value of the securities hypothecated, and (3) according to the degree of protection afforded by the deed of trust. What may be said to constitute the credit of a corporation is too large a subject to be treated here. It is developed in the first chapter on *Railroad Bonds*.

218. A tendency to wide fluctuations is undesirable in collateral, for an increase in its market value is ultimately the avail of the owners of the collateral, but a decrease in market value undermines the security of the bonds. Therefore stock, with its comparatively unstable worth, is not so desirable as bonds. The Atlantic Coast Line, Louisville and Nashville Collateral Trust 4s of 1952 are secured by deposit of Louisville and Nashville stock. A severe panic is likely to find the value of the collateral shrunk considerably below the par of the bonds.

219. It is desirable that the collateral should be the securities of a corporation disassociated as to the nature and sources of its revenues, so that a set of conditions that will unfavorably affect the credit of the issuing company, will not necessarily work to the detriment of the collateral.

220. But the most conspicuous failure of collateral trust bonds has lain in the weakness of the trust agreement as a protection to the bondholders. Experience from past defaults is now corroborated in the Detroit, Toledo, and Ironton, Ann Arbor Collateral Trust Notes. Although the Notes were due Dec. 1, 1908, and were in default some time previously, the owners were not able for two years to come into possession of their Ann Arbor Stock. Collateral should be deposited with the trustee for the bondholders on terms that would render it to the holders upon default that they might imme-

230. Since the informing principle of these Certificates of Beneficial Interest is the voting trust agreement made effective by the pooling of securities, we may place in the same category *Trust Certificates*, a generic term like the preceding, and *Stock Trust Certificates*, and *Stock Interest Certificates*, titles of like signification, but always referring to corporate shares. All these Certificates are properly classified among bonds when there is an obligation to pay principal, interest, or both. Most of them, also, by nature, are collateral trust bonds; and when this is the case they are classified as such by the Interstate Commerce Commission.

The St. Louis and San Francisco has several issues of Stock Trust Certificates. They will repay study.

231. *Residuary Estate Bonds* are a collateral type which have the distinction of being the only bonds mentioned in these pages that are not public or private corporation securities. They are issued by persons who have legal rights to moneys or merchantable effects, fees, or entail, receivable at a future time under the terms of wills. The rights may be to the principal or to the interest in the property bequeathed. They are secured by a collateral instrument which transfers this right to the purchaser of the instrument. The right should be made absolute by previous admission to probate without contest.

The banking house gives to the beneficiary who decides to bond his prospects the amount of the bond, less the brokerage and the cost of an annuity (purchased of some insurance company), which will probably have the same duration as the testator's "expectation of life," and bear the same rate of interest as the bond. The annuity, made payable to the buyer of the bond if the beneficiary dies before the bond matures, protects the interest, but not the principal, during the expectation of life. If the testator dies within this period the bond owner obtains the principal of his loan so much the sooner, and thus increases that part of the net yield on his investment represented by the difference between the discount cost of the bond and par. Since the testator may live beyond this period there should be an equity in the value of the collateral sufficient to pay for the greatest possible amount of interest due during the extended term of life. In other words, the selling price of the bond should be sufficiently low to cover unexpectedly long interest payments. Obviously the net return on such a bond cannot be figured from the bond tables. It is the province of the actuary to determine the cost to

86 CLASSIFICATION AND DESCRIPTION OF BONDS

return a given approximate yield, or the approximate yield at a given cost.

232. *Car Trust Certificates*, or *Notes*, on the one hand, and *Equipment Bonds*, or *Notes*, on the other, are the two common forms of securities by which railroads obtain rolling and floating stock on collateral credit.

233. The older form, *Car Trust Notes*, are usually certificates issued by *Car Trusts*, or *Equipment associations* (that built or purchased equipment to sell to railroads) to the effect that a certain sum is due the holder when certain rentals are paid by the railroad. Formerly the lease warrants covering the rentals were the collateral security for the certificates. Of late individual warrants for the instalments of rent have been deemed superfluous, since specific references to the disposition of the rentals are in the contract of lease.

234. *Equipment Bonds* are to be broadly distinguished from *Car Trust Certificates* first in the maker, which is not an equipment association, but the railroad itself, and secondly in the security, which is not the lease, but a regular contract of conditional sale. In either type of security title remains in the trustee to the benefit of the security holders until the railroad has made all lease or instalment payments.

Further comments are reserved for Chapter XXIII on *Equipment Bonds*.

235. *Sinking Fund Bonds* are those for which the mortgage deed requires that a stated sum shall be set aside, periodically, out of earnings in order to retire the bonds from year to year, as they mature.

236. The propriety of sinking funds for state and municipal loans is fully discussed in the proper chapters. From the days of Albert Gallatin there have not been wanting men of sufficient clarity of vision in financial matters to realize the unnecessary complexity and waste in sinking fund accounts and the simplicity and economy of applying a surplusage directly to the cancellation of debt. But it is only in recent times that the same principle has obtained recognition for corporation bonds.

237. Twenty years ago sinking funds were considered a usual and proper safeguard of railway loans, but the experience of the lean years following the panic of 1893 destroyed faith in their efficacy, for about 25 per cent. of all railway obligations so secured, defaulted. It came to be realized that sinking fund accounts could be subject to manipulative tactics which would render them a source of ex-

pense and loss of credit, rather than of income and confidence. For instance, where earnings did not admit payments to the sinking funds (which in accounting are a charge prior to interest payments) new bonds were issued to raise the money necessary for sinking fund payments, so the total debt was increased rather than decreased, with consequent loss of net earning power and credit. Thus it was realized that the best reinforcement of an obligation was obtained by putting the surplusage back into the property, and by refunding bond issues as they matured, on the strength of an increased credit, and therefore at a lower rate of interest.

238. It is evident, however, that this fiscal policy will not always be best for small companies, or for companies owning properties which must be depleted to produce revenue. It is imperative, for instance, that the outstanding obligations of a coal company should lessen, as the supply of its marketable product lessens. Strongly safeguarded sinking funds, therefore, should accumulate to discharge the bonded debt when due.

239. With the exception of telephones, perhaps, of all kinds of property commonly bonded, rolling stock depreciates with greatest certainty and rapidity. After fifteen or twenty years there is very little life left in it. Yet equipment bonds are one of our strongest securities. Most equipment issues, and the best of them, have no sinking funds. Their *principal* safety lies in the fact that the debt is paid off more rapidly than the cars and engines wear out. Here is the best exemplar of reinforced security: Serial Repayment.

But in small companies, and in those subject to the depletion of their material assets, if there is not serial repayment, then, by all means, there should be sink fund accumulation.

240. The premature payment of funded debt may be schematized as follows:

Amortization	Serial Repayment	<ul style="list-style-type: none"> By serial bonds By equal annual instalment bonds 	
	Sinking Fund Payment	<ul style="list-style-type: none"> By accumulation of cash By investment of cash 	<ul style="list-style-type: none"> Through purchase and preservation of alien bonds Through purchase and preservation of own other issues Through purchase and preservation of own bonds of this issue Through purchase and cancellation of own bonds of this issue

There are advantages and disadvantages in each of these dispositions of the sinking fund. Cash accumulations, even when restricted

to special uses, are a help to the company's credit and banking accommodations. But cash, on deposit, is at best accumulative at the rate of only 3 per cent., whereas cash converted into investment will yield at least 4 per cent., and perhaps more. This disadvantage in interest rate is felt by the company more than by the bondholder, but in a very true sense that which is detrimental to the one is detrimental to the other.

Cash funds are not only liable to ultimate misappropriation, but to temporary and expensive misuse. A railroad company, now in bankruptcy, is understood to have loaned interested bankers last year several hundred thousand dollars that belonged to a subsidiary, and then, for lack of cash, was obliged to hire equipment. By withdrawing this sum and using it as the nucleus for equipment purchase, the present management saves this year some fifty thousand dollars.

241. Even though the disposition of sinking funds by investment yields a higher return, it makes, of the company, a financial and investment institution, unless the terms of the deed of trust require of the trustee a supervision more than usually close. The company, as such, is not fitted to make investments; if it purchases for sinking funds the bonds of other companies, its natural disability is increased by its possible efforts to obtain a rate of return equal to that it would have obtained if it purchased its own bonds. The company is more conversant with the investment value of its own obligations than it can possibly be with that of the obligations of other companies, but if various alien securities are purchased solely on the basis of their investment worth, then the sinking fund has distributed its investment risk. Since these purchases, and their changing value, are not ordinarily matters of public knowledge, the bondholder has no means of knowing to what extent the security for his bond is increasing in this amortization of the debt by proxy, as it were.

242. There are three ways in which a company may invest its sinking funds in its own bonds. It may purchase and keep alive parts of its other issues, or of parts of the issues being amortized, or it may purchase and cancel parts of the issue being amortized.

To purchase parts of its other issues will increase the general equity of the company since it cannot very well owe itself, and investment in its own bonds supposes a knowledge of the securities purchased. Otherwise the plan has little to recommend it.

To purchase and keep alive in the sinking fund bonds of the issue

being amortized is a truer reduction of the loan, for these bonds may not again be reissued.

To purchase bonds of the issue and cancel them, lessens, as the previous plan does not, the fixed charges of the company, but since it does not compound the moneys applied to the sinking fund, less bonds will be thus amortized for each thousand dollars of appropriation.

243. Appropriations to the sinking fund, like the serial repayment scheme above, may be in equal annual payments of principal amounts, or the payments may be graduated so that the heaviest charge for payment of principal may not come at the beginning when, theoretically, the company is not so well situated to meet them out of the increased earnings due to the expenditure of capital raised by the bond issue. In common practice this difficulty is met by increasing gradually the percentage of net earnings that apply to the fund; or, with less reference to earnings and more to mathematics, the company may cumulate predetermined sums so that as the bonds bought for the fund increase the interest, payments on account of the principal may grow smaller.

244. From the investor's point of view it is objectionable that bonds should be callable for the sinking fund unless at a considerable premium over the investment value, for otherwise the fact tends to retard the natural appreciation of the security. Sometimes the trust deed stipulates that the bonds shall be bought in the open market when tenders are made at some reasonable price. This helps to maintain the price and the market. If bonds may not be had at the upset price, then the trustee may be empowered to invest the fund as he sees fit, within certain restrictions.

245. **Lien on Realty.** That reinforcement of a promise to pay which is a pledge of real property is the most easily understood and enforced, and, all things considered, is the most satisfactory.

246. Although Civil Loans are very largely Debentures, and in Great Britain and Canada it is customary to call municipal loans Debentures, nevertheless, as has been intimated, *Municipal Mortgage Bonds* are by no means uncommon, and occasionally are classed together and so entitled. The classification, however, may be thought rather academic, for the bonds spring from no common cause and have few common characteristics except the mortgage feature. Municipal water bonds are often secured by a mortgage on the plant. In giving the mortgage perhaps municipalities are influenced by the fact that private water companies are bonded, and in taking over

90 CLASSIFICATION AND DESCRIPTION OF BONDS

such companies it is natural that the old bonds should either be guaranteed or assumed, or be refunded with a new issue of municipal origin, backed by pledge of the plant. It will be found that the most kinds of municipal mortgage bonds are secured upon property which is revenue-producing.

247. *Real Estate Mortgage Bonds*, as a title, is applicable to several distinct bond classes. In the first place it is sometimes used to denote all issues having as security a lien on real estate. In this broad extension of the phrase all railroad mortgage bonds, for instance, come under the classification except, perhaps, a few that are primarily secured by a lien on leaseholds. Secondly, it is commonly used, as in this book, of that class of bonds issued by real estate companies which is secured by mortgages on real estate. Or again, it may be used of the issues of any corporation that are secured, in whole or in part, by liens on the company's real estate rather than on its plant and equipment as a whole. The classic illustration of Corporation Real Estate Mortgage Bonds is the Western Union Telegraph Co.'s Funding and Real Estate 4½s (1950).

248. *Real Estate Bonds* is a common title for Real Estate Mortgage Bonds issued by railroads on property not directly used in the operation of the road. The Terminal, Dock, and Wharf Bonds, etc. which are mentioned presently, may be looked upon as subdivisions of the class. The Charleston Real Estate 4 per cent. Land Mortgages of the Boston and Maine were an excellent example. Real Estate Bonds is also an abbreviation for Real Estate Company Bonds.

249. *Land Grant Bonds* are a species of railroad Real Estate Bonds. They are secured by liens on lands granted by a government. The proceeds from the sale of the lands to settlers establish a sinking fund from which to retire the bonds. The *Canadian Pacific* Land Grant Gold 3½s are the leading issue of this class now outstanding in America.

250. *Farm Mortgage Bonds* were a type in great vogue in the trans-Mississippi plains, two or three generations ago. Themselves a refinement on the farm mortgage, they later became commonly used as collateral for the obligations of real estate brokers and promoters. A few successive seasons of drought and hot winds in the eighties drove the farmers further west. Western real estate companies were driven to the wall; their guaranties were worthless and unsecured bonds were unsatisfied. Eastern holders of mor

gages found themselves owners of unproductive property. The savings banks of a New England State were crippled.

The collapse of Western plains land values was a blow to the popularity of farm mortgages and farm mortgage bonds from which they never recovered. Yet there is no inherent weakness in farm mortgages as security for bonds. When investments in either are made at first hand by competent buyers, such as insurance companies, farm mortgages are excellent security. But so little technical training and experience is required to do a farm or general real estate mortgage bond business, that many may be trusted to be in the field who are without scruple and experience. Like irrigation bonds, these securities should be bought only of houses with acknowledged standing in the special field.

251. Mortgage Incidence. The titles to several kinds of bonds arise from the fact that issues may be secured by mortgages on only a part of the company's property. They are entitled according to the character of the property mortgaged.

It is natural that most of these titles concern railroad bonds since railroads usually embrace, in one system, property spread over several states.

252. Divisional Bonds are secured by mortgage on railroad divisions. The division originally may have been an independent company, and as such may have issued the bonds. In case of merger, the issue is both Assumed and Divisional. The purer type is that issued by the system itself and secured on a section of the road which the railroad, as an operating company, calls a division.

It will be well to limit the term Divisional to these two forms. However, if the division maintains a separate corporate existence, but is controlled by the system, and its issue or issues are guaranteed by the system, the bonds may be called loosely Divisional Bonds. If the division has two issues, whether they are guaranteed or not, the prior Divisional Bonds may even be underlying the system's consolidated issue, for although the parent corporation cannot give a mortgage on real property that does not belong to it as a corporation, yet it may place the junior Divisional Bonds as collateral behind its consolidated issue.

253. Extension Bonds are, in essence, divisional bonds of the pure type, but the mortgage incidence may be such as not to coincide with operating divisions. Loosely, Extension Bonds is simply the more descriptive term when the line pledged is a continuation or extension of the system into new territory. That is, the bonds are secured

92 CLASSIFICATION AND DESCRIPTION OF BONDS

by mortgage on the extension. They may be additionally secured by a junior lien on the older properties of the company. If a portion of the issue is held in escrow to retire the mortgage bonds of the old divisions the new issue is of *Refunding and Extension Bonds*.

Divisional and Extension Bonds that are not direct obligations of the system, are safe investments only when the mortgaged line is essential to the operation of through traffic, as in the case of a Main Line issue, or else when it originates an assured amount of traffic the net earnings from which will always exceed the requirements of the divisional or extension bond issue.

Extension Bonds should not be confused with Extended Bonds,

254. Kindred to Extension Bonds, and of the Divisional type, are *Purchased Line Bonds*, although in this case the implication is that the division or road acquired has been constructed and previously operated as an independent company. The bonds will be secured by mortgage on the line or lines purchased.

Purchased Line Bonds, in turn, must be distinguished from Purchase Money Bonds.

255. The following five kinds of mortgage issues differ only in the character of the property for which the money was raised, directly or indirectly. Separate companies may have been incorporated for the purpose of holding title and of issuing the securities. One or the other of two causes are generally at work when these subsidiary companies are formed:

I. It may be desired that the property come into the hands of the railroad *already mortgaged*, so that the cost of the property may be defrayed by a bond issue which can be sold on the advantageous terms that a straight, closed first mortgage will bring. If there is a blanket mortgage of the railroad outstanding which becomes a lien on "all property subsequently acquired" the funds raised to acquire this property will, perhaps, be obtained on less favorable terms, under the blanket mortgage, or perhaps that issue is all outstanding so that no funds can be raised from it.

II. The property acquired and the works constructed may be for the joint use and advantage of several railroads. That all may have an evident *pari passu* interest and proprietorship in the property. part ownership and control of it is best obtained by the ownership of part of the stock of new company formed to own the property. The bonds of this new company will be its direct obligation, further

secured by mortgage on the property, and possibly also by joint or joint and several guaranty as well.

256. *Bridge Bonds* are not likely to be issued for construction purposes unless the engineering is on a scale to require separate financing. The Kansas City, Fort Scott, and Memphis Railroad has guaranteed the \$3,000,000 First mortgage issue of its subsidiary, the Kansas City and Memphis Railway and Bridge Company for the bridge thrown across the Mississippi River at Memphis. To save the expense of several structures railroads often unite in the use of a single bridge, which may best be financed by a separate company with bridge bonds.

257. *Ferry Bonds* are seldom the result of community of interest; but rather of the first cause mentioned above: namely, a desire to bring the property into the control of the railroad with as small an equity as possible for the benefit of the blanket mortgage bondholders. For the bonds to be safe, apart from the guaranty of a trustworthy company, it must be established that the need of a ferry will outlast the life of the bonds.

258. *Dock and Wharf Bonds* share the investment characteristics of both Ferry and Terminal Bonds, with distinction only as to the nature of the property pledged. Incorporation of a separate dock or wharf company may be the result of a community of railroad interests, or may be an evasion of the "after acquired property clause."

259. *Terminal Bonds*, also, are usually the result of a community of railroad interests. One of the most difficult problems in railway transportation is to obtain adequate terminal facilities in proper situations at a cost commensurate with the traffic return. In many of the large cities "Union Depots" solve this problem. The expense incurred and the benefits accruing are shared by the railroads that are parties to the undertaking. A common arrangement is the formation of a terminal company to be owned solely by the interested railroads. The terminal bonds of this company will be secured on the real estate, trackage, and other property of the company and will be jointly guaranteed by the railroads. Illustrations are the Boston Terminal Company 3½s already mentioned, and the Terminal Railroad Association of St. Louis 4s. The Washington Terminal Company 3½s and 4s are guaranteed jointly and severally by the two railroads that own the company.

A weaker form of Terminal Company bond is that secured on terminal property not owned or controlled by the lessee railroads. A

94 CLASSIFICATION AND DESCRIPTION OF BONDS

bond issued under such circumstances is not likely to be guaranteed. The Chicago Terminal Transfer 4s issued in 1897 are of this kind.

Terminal bonds may be the obligation of a single railroad, as secured by mortgage on one or more terminals, as the Chicago, Milwaukee, and St. Paul Terminal 5s of 1914, or on terminals and trackage, but if the trackage is of considerable value in relation to the whole, the word Terminal may not appear in the title.

Terminal bonds that are the direct obligations of one or more interested railroads are a good class of investment paper, for they are really underlying liens.¹ But the default on the Chicago Terminal Transfer 4s calls attention to the fact that terminals, in themselves, rarely pay the cost of construction, and the investment value of their securities depends on their relation to an entire system. So considered, terminal improvements pay, but only when the expenditure is not a capital burden out of proportion to the size of the road or roads that undertake them.

260. Mortgage Priority. Many bond titles have their origin in the standing of the mortgage that reinforces the obligation. Sometimes these titles are misleading. For instance, the Chicago and Alton Refunding 3s of 1949 are a first mortgage on 596 miles of track. The Chicago and Alton First Lien 3½s of 1950 are a second mortgage on this same track and a first mortgage on less than 100 miles.

Mortgage priority is a matter of gravest importance, even if property is not subjected to foreclosure, because reorganizations, to gain acceptance by the creditors, must recognize the relative strength of the several liens and make readjustment of the capitalization on the debt, on that basis.

Priority is entirely a relative matter and there are several terms which properly convey the idea of the relative strength or weakness of the lien.

261. Prior Lien Bonds are simply bonds which are "closer to the ground," i.e. mortgage obligations with rights on the property held in trust that are prior to some other rights. It is not unusual to be the custom deprecated, as wilfully misleading, of calling loans Prior Lien that are not a first mortgage. This criticism is hardly defensible. Priority does not suggest primacy, but merely precedence; it is not an absolute but a relative term. However, it

¹ The Portland and Rochester Terminal 4s are mere debentures,—assumed to be so in the Boston and Maine.

overdone, as in case of the Erie First
n 4s, which are a sixth mortgage on the

Underlying Bonds is a term that should be practically syn-
on *Lien Bonds*, for it merely implies that there are
that perhaps in practice *Underlying Bonds* are
ured by first mortgage or its equivalent. Just
s the antonym of *Prior Lien*, *Overlying* is an
lying.

Senior and *Junior Issues* make another set of com-
; but these differ from the foregoing since they
only the mortgage obligations, but the debentures.
pressions "*Junior Issues*" is the more common. The
ior" reverts to the security also and we have "*Junior*
course the *Senior* are the *Prior Issues* and among mort-
ior are *Overlying Issues*.

First Mortgage Bonds speak for themselves. They are
a first mortgage on all or part of a property. In rail-
panies that part of its entire property which yields a
to any one issue is likely to be very small, for divisional,
and subsidiary company liens are usually attached to
the line. However, the tendency in corporate finance is
the number and simplify the character of funded obliga-
Therefore many issues that are not now very "close to the
nd" will become absolute *First Mortgages* in future years,
divisional mortgages mature.

265. The term *first mortgage* may be used (and sometimes is)
a lien on personal property: on chattels and rights of one kind
another. *First Mortgages* recorded on leaseholds of realty and
ing stock are not at all uncommon. Investors have difficulty
appreciating that there is no innate legal superiority in a realty
rtgage. A recorded mortgage secured by the leasehold rights on
piece of property is prior to a subsequently recorded mortgage
n the fee.

266. *Refunding First Mortgage Bonds* is given separate men-
tion that a careful distinction will be made between these and
First Refunding Mortgage Bonds. The former is what the words
imply: an issue refunding a *First Mortgage Bond*. The latter is
the first issue (in point of time) which the company has floated to
refund old bonds. Obviously, the title is misleading and unneces-
sary. One is justified in believing it is sometimes used to give the

impression that the bonds referred to are secured in part by a first mortgage.

267. *First and Refunding Mortgage Bonds* admits of no such equivocation. What assurance of security the title gives is in the *First* which declares the bonds are secured by a first mortgage. The *First* element in the Missouri Pacific First and Refunding 5s is a first lien on 165 miles. The *Refunding* element represents a prospective betterment of the present position of the obligation as secured by second, third, fourth, and fifth mortgages in 3,616 miles.

268. First and Refunding Bonds are the most important class of railroad issues with which bankers now have to deal. They are the soundest means of financing, and the commonest expression in securities, of the present tendency to gather up in one general mortgage all the miscellaneous debts of the corporation.

Let us suppose a railroad has a closed Consolidated Lien of \$25,000,000 covering 500 miles of track, and has just built 100 miles of track for which it must now be reimbursed by a bond issue mortgaging this new track. If the road purposes to issue a new first mortgage bond in the sum of \$5,000,000 to cover the 100 miles of new construction the bankers may advise, instead, an issue of \$40,000,000 authorized, First and Refunding Bonds, of which \$25,000,000 will be reserved to retire the Consolidated Lien, \$5,000,000 to pay for and be a first lien on the new 100 miles and \$10,000,000 will be reserved for extensions and improvements under such restrictions as will protect the issue.

269. Open First and Refunding issues along lines similar to these are financing the needs of the Rock Island, the Delaware and Hudson, the Denver and Rio Grande, the Missouri, Kansas, and Texas, the Missouri Pacific, the Wisconsin Central, and about two dozen more of our larger railroad systems. It will be seen, therefore, that fifty years hence American railways ought to be benefiting by a much simpler scheme of funded debts.

A confusion of bond terms similar to that mentioned above, exists regarding other issues.

270. *Consolidated Mortgage Bonds*, properly, are bonds secured by a mortgage on properties that have been consolidated. There may be underlying issues on any of the properties. Another less exact and legitimate use of the title is for issues that ultimately consolidate, by refunding, several prior mortgage issues on one property.

271. *Consolidated First Mortgage Bonds* should signify an issue secured by a first mortgage on consolidated properties.

272. *First and Consolidated Mortgage Bonds* should signify a consolidated issue secured by a first mortgage on part of the consolidated properties. It is inexactly used as synonymous with First and Refunding, First and General, and First and Unified issues.

273. *First Consolidated Mortgage Bonds* should signify the first consolidated issue that the company has floated.

274. *General Mortgage Bonds* is the most honest expression for what most recent railroad issues are: viz. loans secured by a general or blanket mortgage on most, if not all, the railroad property, but subject to the prior liens which they ultimately refund.

275. *General First Mortgage Bonds* as a title is a misnomer. If it is a general mortgage it is not a first mortgage. The title is sometimes used when the amount of the underlying bonds is small and bonds of the general issue have been reserved in the hands of the trustee to retire them. But the proper title for this class is *General and First Mortgage Bonds*, or *First Lien and General Mortgage Bonds*.

276. *First General Mortgage Bonds* is, by interpretation, the first issue of General Mortgage Bonds. Since a second general issue is not likely, this is another of the equivocal titles.

277. *Unifying Mortgage Bonds*, as a title, with the usual derivatives, is virtually synonymous with *Consolidated*, or with *General Mortgage Bonds*. All three classes serve, in process of time, to simplify, in one general obligation and under one blanket mortgage, the miscellaneous lien-secured obligations of the company. That there may be no necessity in the near future of repeating the generalization of funded debt, bonds are usually reserved to pay for all improvements, extensions, etc., which are likely to be made for years to come. The issue, therefore, consolidates, unifies, or generalizes not only past, but also future capital requirements.

278. Although Income Bonds, by nature, are usually without lien security and interest is dependent entirely upon earnings, nevertheless some issues have property claim, in default of principal at maturity. Hence arise *Mortgage Income Bonds*.

279. Mortgage priority is clearly defined in *Second* and *Third Mortgage Bonds*. Although the second or third mortgage issue of one company may be superior to the first mortgage issue of

98 CLASSIFICATION AND DESCRIPTION OF BONDS

another, and although the second or third divisional mortgage of one company may be superior to the first mortgage on another division of the same company, nevertheless the general order of preference on a given property, in default or liquidation, is the numerical order indicated in the title.

280. But the prospective purchaser of a bond to be bought on the basis of its closeness to the ground should remember two things: a general claim on the entire assets of a company will sometimes obtain readier recognition than a first claim on minor assets which are of themselves insufficient to satisfy that claim; and secondly, it is seldom good business to satisfy entirely the owners of the first mortgage bonds at the expense of the owners of the junior issues.

281. The extent to which the theoretical and legal priority will be satisfied depends very largely on the nature of the property. If it is convertible without too great sacrifice of its intrinsic value,—if for instance it is marketable real estate,—then the only hope for holders of junior mortgage bonds is that the property will realize a sum sufficiently in excess of the senior claim to satisfy them.

282. But it is usually the case that the property has value chiefly in connection with the purposes and business of the company pledging it. A railroad right of way is of little value except for transportation service; rails as scrap-iron, and ties as lumber are almost worthless. Old freight cars are burned up. It doesn't pay to dismantle them for kindling wood. At foreclosure sale a railroad property must go to those who can run railroads. Investors cannot run railroads. Hence the necessity for comity among creditors and a reasonable compromise, even with stockholders.

The Refunding, General, and Consolidation Mortgage Bonds just discussed, are, when issued, usually Second or Third Mortgage Bonds on the major part of the property.

283. *Second Refunding, Second Consolidated, and Second General Mortgage Bonds*, each refer to the second issue of their kind by the one company. The need for these Seconds arises when ample provision for extensions and betterments was not made in the provisions of the First Trust deed, and the Seconds will probably bear the same refunding relation of successorship and perform the same function as reserve funds, that the First Refunding, Consolidated, or General Bond bore to the underlying divisional liens. As yet this class is very rare.

284. *Improvement Mortgage Bonds* are of the same general

nature as the bonds mentioned immediately above: they are both refunding and extension bonds. An issue is more likely to be entitled Extension than Improvement, when the chief reinforcement of the obligation is a mortgage on the newly-constructed or acquired property.

285. Improvement Mortgage Bonds should be distinguished from the municipal debentures called Improvement Bonds, issued for Public Improvement or specifically for Street Improvement.

286. *Debenture Mortgage Bonds* is a hybrid product, in essentials a mere promise to pay, but nominally secured by a junior lien on property of comparatively small value.

287. Mortgage Debentures as synonymous with Mortgage Bonds is a perfectly logical title in those countries which use the word debenture as practically synonymous with bonds in general, rather than with unsecured notes in particular.

CHAPTER X

THE CLASSIFICATION AND DESCRIPTION OF BONDS: ACCORDING TO THE PURPOSE OR FUNCTION OF THE ISSUE

288. The third scheme of classification is according to the purpose for which the bonds were issued,—as expressed in the title of the bond. The detailed treatment accorded municipal issues and other civil loans, in Part II, makes it unnecessary to mention here more than a few issues of the municipal type. Bonds of this third class are noted most conveniently in alphabetical order.

289. *Anticipation Tax Warrants* is one of the many titles that is practically synonymous with Revenue Bonds, which see.

290. *Bonus Bonds* is a frank old-time title for securities issued by private corporations, as Land Grant Bonds frequently were, in payment for services rendered by promoters, et al., or to raise money for that payment; and by municipalities, as in the more specific case of Railroad Aid Bonds, to bring a railroad or manufacturing concern to a town. *Subsidy Bonds* is a more euphemistic expression than Bonus Bonds for the same general class of issues, when the proceeds reimburse a company for public service like the transportation of mails by steamships. Bonus Bonds of private corporations are looked upon with disapproval when they do not immediately represent a profit-bearing outlay, and may not increase the value of the property on which they are secured. Perhaps municipal Bonus Bonds in general are more frequently open to charges of invalidity than Railroad Aid Bonds in particular. (See Founders' Bonds and Purchase Money Bonds.)

291. *Charter Bonds* are United States bonds purchased by a National Bank at the time of its incorporation, and deposited with the Treasurer of the United States that it may receive a federal charter to do business.

292. *Construction Bonds* is a term loosely applied to issues secured by property and plants in course of construction, before the company that issues them has an earning power of record. The term is applied with most force when it is the intention

to refund the issue with a more permanent mortgage bond, either of new creation or of a general issue part of which is now in escrow for this purpose. Having reference to the character of the obligor, the bonds may be floated by a construction company, in anticipation of instalment payments on the plant or building. In this case they are probably serial notes, and like mechanics' liens, a charge on the plant prior to a regular first mortgage.

293. *Continued Bonds* is the variant for *Extended Bonds* and of less common use. In these the contract for payment has, by mutual agreement, been extended. The object on the part of the company may be to await a more propitious time for a new flotation. The fact of extension with any new terms, such as increased, or possibly reduced, interest, will be stamped or printed on the old bonds. The practice is steadily growing of extending rather than refunding issues, as a matter of mere financial expediency. It is thought that a larger proportion of the holders of the old bonds will take advantage of the "privilege" of extending their loan than would be the case if they were called upon to cancel their loan and reinvest on the same terms. New certificates, even, may be issued, and nothing of the old issue be left but the corpus of the old mortgage and the time-honored and familiar title.

294. *Delinquent Tax Certificates*, are of the municipal mortgage type. They are a first lien on land which has been sold in settlement of an arrearage of taxes. But since the former owner has the privilege of redeeming the property within a stated number of years, and since disputes may arise concerning the regularity of the sale, these certificates are more a speculation than an investment.

295. *Drainage Bonds*, as a distinct, quasi-municipal class, we treat in Chapter XXXIII, under *Reclamation Issues*, but direct municipal obligations are often so entitled, when issued for drainage purposes.

296. *Founders' Bonds* (an English expression) may serve the same purpose as Bonus Bonds in corporation finance: to reimburse those who have undertaken the promotion of an enterprise. But again the purpose may be quite the other extreme: to pay the proprietor or founder for his interest in the company. The United States Steel Corporation First Collateral Trust 5s, issued in 1901, are in large part Founders' Bonds, for they were paid to Andrew Carnegie (cf. Purchase Money Bonds).

102 CLASSIFICATION AND DESCRIPTION OF BONDS

297. *Funding Bonds* represent the unification or consolidation of funded debt, of various informal notes, scrip, and other forms of floating indebtedness. Whether the obligations are of municipalities or private corporations, a floating debt has served its usefulness when it is found that the sum cannot be extinguished out of current revenues, and the bond market is favorable to flotations, for then a regular long term funded issue can be put out at a lower rate of interest than these less permanent and perhaps less well-secured certificates of indebtedness. Funding Bonds should not be confused with Refunding Bonds.

298. *Improvement Bonds*, it has already been said, are quite distinct from Improvement Mortgage Bonds. The former are municipal debentures issued for any form of public improvement. They are sometimes special assessment bonds, and therefore may or may not be direct obligations of a municipal corporation proper.

299. For *Interim Certificates* see Temporary Bonds.

300. *Judgment Bonds* are another form of municipal debenture that share in the ill-favor of Special Assessment Bonds. This is because they are the product of litigation, usually respecting the validity of a debt. But if the municipality is able to pay, and the judgment has been obtained without fraud, the obligation should prove a safe investment.

301. For *Provisional Certificates* see Temporary Bonds.

302. *Purchase Money Bonds* perform the same function as Founders' Bonds: they are issued in full or part payment for a property or company. When for a property, it is probable they will be a lien on that property; when for a company it is probable that the stock will be pledged as security for the bonds, that in case the interest is not met, the company may revert to its former owners.

303. For *Railroad Aid Bonds* see the Index.

304. *Redemption Bonds* are equivalent to Refunding Bonds; but a nice sense of word values might suggest the term *Redemption* for new issues that succeed called issues, and *Refunding* for issues that succeed matured issues. There is no connection between Redemption Bonds and Redeemable Bonds.

305. *Renewal Bonds* are virtually Extension Bonds, but the title may be used for Refunding Bonds.

306. *Revenue Bonds*, or *Notes*, provide municipalities with current funds to supply their needs until taxes or other income is collectible. *Tax Relief Bonds* is another title for the same class.

Similarly *Arrearage Bonds* take care of deficits caused by tardiness in payments of taxes due.

307. *School Bonds* are usually emitted for the purchase, construction, and equipment of school property. Their standing in the investment world is somewhat better, perhaps, than any other class of municipals, except water bonds, for, although the object for which they are put forth is not revenue-producing, yet they represent, in the eyes of a community, the noblest purpose for which it can pledge its good faith.

308. *Sewer Bonds* may be cited as another class of municipals worthy of mention,—these in illustration particularly of the utter impossibility of cataloguing all bond titles. Among the subdivisions of sewer bonds one meets are *Sewer Trunk*, and *Intercepting Sewer Bonds*. There is little difference in legal standing between these many municipal issues, providing they are direct obligations of municipalities proper, and are payable out of unlimited taxes levied on all the property.

309. *Subsidy Bonds*. See Bonus Bonds.

310. *Tax Arrearage Bonds*. See Revenue Bonds.

311. *Tax Relief Bonds*. See Revenue Bonds.

312. *Temporary Receipts*, strictly speaking, are the formal acknowledgment by banking house, trust company, or issuing corporation, of the payment for a bond not yet prepared for delivery, and the promise to deliver the bond, when prepared, on surrender of the receipt at the proper offices.

313. *Interim Certificates* may signify the same thing as Temporary Receipts, or they may signify Temporary Bonds.

Temporary Bonds and *Interim Bonds* can be distinguished from Temporary Receipts in business parlance, for they are not merely acknowledgments of value received, but really substitutes for the more carefully engraved or lithographed, permanent, "definitive," instrument. The essential recitals which will appear on the face of the *Permanent Bond* will be typewritten or printed on the temporary bond. Temporary Receipts or Interim Certificates do not carry coupons, and perhaps the majority of Temporary Bonds do not; they carry merely the space to indorse interest payments in case an interest period should intervene before the definitive bonds were ready. The Tacoma Gas Light Company Refunding 5s of 1926 are temporary coupon bonds which have been outstanding for five years.

314. The issuance of Temporary Bonds (or Interim Certificates

104 CLASSIFICATION AND DESCRIPTION OF BONDS

that are Temporary Bonds) is, or should be, specially authorized in the mortgage securing the regular bonds, for otherwise, when the Temporary Bonds were recalled, they, and the loan they represent, would be dead.

315. There is a broader application of the legal principle involved, that few Americans, even corporation lawyers, are aware of. Through a series of decisions the English courts have arrived at the conclusion that if a company hypothecates its own bonds to secure a loan, those bonds are issued.¹ Consequently, when the loan is paid, if the bonds come back into the possession of the company, they are redeemed. Since redemption increases the equity back of any bonds of the same issue that may be outstanding in the hands of the public, the company cannot reissue these hypothecated and redeemed bonds to make them rank *pari passu* with the previously outstanding bonds.

So far as we know the question has never been adjudicated in our courts, but the principle of law back of the English decisions seems indisputable. The holders of unhypothecated bonds could claim, in litigation, a position superior to holders of the bonds that had been hypothecated, redeemed, and reissued; and the American courts would undoubtedly follow the English decisions.

316. Temporary Bonds or Certificates may not have reference to or implication of a definite future issue of regular bonds. Receiver's Certificates are Temporary Certificates.

317. Water Bonds, and issues for many other purposes not specified here, are treated elsewhere in these pages; and to find them most readily the index should be consulted.

¹ A bond, to be issued, must be not only signed and sealed, but delivered.

CHAPTER XI

THE CLASSIFICATION AND DESCRIPTION OF BONDS: ACCORDING TO CONDITIONS ATTENDING PAYMENT OF INTEREST OR PRINCIPAL

318. The fourth classification, relating to the payment of principal and interest, may be subdivided as follows:

(a) According to Payment of Interest:

Bonds of Unconditional Interest

Income Bonds	{	Cumulative
		Non-Cumulative

Adjustment Bonds

Participating Bonds	}	{	Limited
Dividend-Sharing Bonds			Unlimited
Profit-Sharing Bonds			
Registered Bonds			
Registered Coupon Bonds			
Coupon Bonds			
Interchangeable Bonds			

Tax-receivable Bonds

High Rate Bonds

Low Rate Bonds

High Yield Bonds

Low Yield Bonds

(b) According to Payment of Principal:

Premium Bonds

Gold Bonds

Silver Bonds

Currency Bonds

Legal Tender Bonds

106 CLASSIFICATION AND DESCRIPTION OF BONDS

(c) According to Maturity of Principal:

- Straight Bonds
- Serial Bonds
- Equal Instalment Bonds
- Long Term Bonds
- Short Term Bonds
- Deferred Bonds
- Extended Bonds
- Perpetual Loans

(d) With Maturity at the Option of the Payor:

- Redeemable Bonds
- Callable Bonds
- Optional Bonds
- Irredeemable Bonds

(e) With Maturity at the Option of the Payee:

- Optional (with the payee) Bonds or
- Cash Surrender Bonds
- Annuity Bonds
- Endowment Bonds
- Convertible Bonds

319. Division According to Payment of Interest. *Unconditional Interest* is hardly a title for a class of bonds; but it is a phrase descriptive of all issues the interest of which is obligatory as long as the company is solvent. Income, Adjustment Issues, and the like, are the only exceptions to bonds of unconditional interest.

320. Income Bonds already have been treated. Their peculiar characteristic is that the interest is dependent on the revenue of the obligor. Generally the trust deed stipulates that if the entire interest charge on the issue is not earned such portion as is earned shall be paid. Sometimes unpaid interest accumulates as a charge against future earnings. In this event the bonds are *Cumulative Income Bonds*; otherwise they are *Non-Cumulative*.

321. Adjustment Bonds is a title which nominally expresses a purpose and might at first seem to come under the third classification with more propriety: for they are issued to adjust a debt that has been compromised or adjudicated. The leading obligation of the kind is the Atchison Adjustment 4s of 1995. A reading of the trust deed will show that these are Mortgage Income Bonds, non-cumulative prior to July 1, 1900; but of course the mortgage could not be foreclosed until maturity. The use of the word Adjustment

instead of Income is to avoid the more unpleasantly descriptive adjective.

322. *Participating Bonds* are, in a sense, the opposite of Income Bonds. In Income Bonds the interest paid may, without redress, run from a certain maximum rate down to nothing; whereas in Participating Bonds the income may run from a certain minimum to a certain maximum (in limited participation) or to whatever is earned (in unlimited participation). Participation bonds are very likely to be collateral trust, in the nature of the case; and the participation feature is conceded to offset possible deficiency in the collateral security, which is likely to be stock. When the dividend on this stock is more than sufficient to pay interest charges on the secured bonds, a portion of the surplus goes as a sort of dividend to the bondholders. Therefore bonds of this type are also sometimes called *Dividend Bonds* or *Profit Sharing Bonds*; but particularly when these issues are called Profit Sharing Bonds the indenture provides that a certain proportion of the company's entire net earnings shall go to the bondholders. Real Estate Debentures are often profit-sharing.

323. As to methods of collecting interest, and of transferring bonds, there are four classes: Registered, Registered Coupon, Coupon, and Interchangeable Bonds.

The ownership of *Registered Bonds* is evidenced by registration in the transfer office of the issuing company or municipality. Transfer of title is accomplished only by indorsement on the back of the instrument by the payee: i.e. the person in whose name it is registered. The bond must then be sent to the transfer office for re-registration.

For convenience in making sale, or for other reasons, it may be desirable to make a "transfer in blank:" i.e. the line destined for the name of the transferee or assignee may be left blank. The bonds then become payable to bearer. But, as in the case of stocks, the owner of the certificate, in the eyes of the company, is the person in whose name it is registered; and to this person the interest check will be mailed. Therefore it is desirable that transfers should be registered promptly.

324. *Registered Coupon Bonds* are bonds registered as to principal, but with interest coupons attached, which pass by delivery and are payable to bearer.

325. *Coupon Bonds* are negotiable instruments that ordinarily do not have on them the name of the owner. Therefore they pass

108 CLASSIFICATION AND DESCRIPTION OF BONDS

from hand to hand like bank notes. Interest is paid on surrender of the coupons, clipped from the bonds—"little promissory notes," as they mature, one each interest day.

326. For many years it has been a common privilege to make coupon bonds convertible into registered bonds at the will of the owner. But only recently have registered bonds been frequently endowed with the privilege of conversion into coupon. When the bonds of an issue may be converted either way, at will, they are called *Interchangeable Bonds*. When an issue appears in both coupon and registered forms, and is actively dealt in, the results of interchangeability are attained by the sale of the one form and the purchase of the other. United States bonds, therefore, have the essential advantage of interchangeability; but since coupon bonds are in better demand than registered and sell at better prices, it is easier to convert coupon bonds into registered, without loss, than to reverse the exchange.

327. The distinct advantage of a registered bond is that payment of interest and principal can be stopped in the event of loss or theft. There is an increase in safety to the obligor, also. New York City lost about \$200,000 some thirty years ago, by making several payments for the same coupons.

The disadvantage of a registered bond to an investor is the inconvenience and expense attending its transfer. The expense, besides a possible registration fee, is the cost of shipment, including insurance and the loss of interest. Registered bonds, moreover, are more difficult to hypothecate.

328. *Tax Receivables* are civil coupon debentures, both state and municipal, the coupons of which are receivable (i.e. legal tender) in payment of taxes due the issuer. They are very common in Virginia. The legal tender provision enhances the security of interest quite independently of security of principal, for it gives the coupons a theoretically certain redemption value. Nevertheless, even tax-receivable bonds and their coupons have been repudiated. Needless to say, since the tax-receivable device is a bolster to poor credit, such municipals are seldom issued of late years.

329. The interest rate that issues bear gives rise to the self-explanatory designations *High Rate* and *Low Rate Bonds*. Those practised in bond dealings can read much history into the interest rates of a state, city, or corporation. The rates prevailing on United States bonds, both long and short term, issued during our

several wars, are a sufficient index of the mutable credit of the strongest governments.

In those states (and they are in the majority) that do not permit municipalities to sell their loans below par, it is possible to sense the growth in credit and the decline in interest rates for money, by noting the gradual decline in the interest rates borne by municipal loans. Much significant bond history is told in the City of Albany, N. Y., Washington Park Bonds, with gradually lowered interest rates from 7 per cent. in 1870 to 6s in 1875, to 5s in 1878, to 4s in 1880, to 2s in the money-drugged market of 1894, and up to 3½s under the withdrawal of funds from investment channels in 1896. Likewise when a city, like Richmond, Va., is able to refund an 8 per cent. issue by a 4 per cent. But on the other hand, when a community like Garfield County, Col., has still outstanding some 7 per cents. subject to call in 1902, and 6 per cents. subject to call in 1905, one is inclined to ask the reason. Or again, when we find very few municipal bonds in New Mexico bearing interest below 5 per cent. we realize that municipal credit is a relative thing.

330. High Yield and Low Yield Bonds do not necessarily correspond with High Rate and Low Rate. A 6 per cent. bond selling at a high premium may be of lower yield than a 3 per cent. bond selling at a discount. The whole matter of net yield is treated in Chapters XXXIV to XXXVI inclusive.

331. Division According to Payment of Principal. Several bond titles are derived from facts relating to the amount or character of the principal repaid. Frequently European government bonds and rarely American municipal and corporation issues must be retired at a premium. These are called *Premium Bonds*. New Orleans has a municipal issue of the kind; a corporation issue is mentioned in § 1269. Bonds selling at a premium are also called *Premium Bonds*; and bonds selling at a discount are called *Discount Bonds*.

332. As to the funds acceptable in payment at maturity, *Gold Bonds* call for payment in gold "of the present standard of weight and fineness," if demanded. *Silver Bonds* are practically unknown to us, although common enough in the past in countries that had a silver standard. *Currency Bonds* are payable in currency: i.e. may be paid in anything that is a legal tender, including paper money. *Legal Tender Bonds* is a title practically synonymous with the preceding.

110 CLASSIFICATION AND DESCRIPTION OF BONDS

333. If there is a difference in the value of the several kinds of currency the bond owner will be given the least valuable. If it were certain that this country would always maintain a gold standard, no importance could be attached to the title *Gold Bonds*. The weaker an issue is the more emphasis laid on the word *gold*.

334. Division According to Maturity of Principal. Relative to the amount of an issue that matures at any one time we have Straight Serial, Instalment, and Equal Instalment issues.

335. "*Straight*" Bonds are by far the commonest. They are issues that nominally mature all at one time, although they may be redeemable in whole or in part before the ultimate maturity date.

336. *Serial Bonds* are issues that are retired in regular instalments. If serial the presumption is a reasonable uniformity in amount retired each period and in the interval between periods. Serial retirement does away with the necessity for sinking funds and therefore is the most economical way to attain the maximum of assurance through amortization. The serial principle is explained in the chapters on Equipment Bonds and Municipal Bonds.

337. *Equal Instalment Bonds* (generally *Equal Annual Instalment Bonds*) carry the serial retirement principle to its ultimate refinement: namely, that the amount of principal and interest to be paid each period shall be such that the periodical cost to the obligor shall not vary. Since the interest charge lessens with the decrease in principal, that part of the total periodical payment which is the repayment of principal, grows constantly larger. In order that it may not be necessary to issue bonds of odd denominations, the equal periodic instalment payment may be approximate at each interest period, to the nearest \$1,000 or \$500 piece, according to the denomination of the issue. If the issue is of any size this approximation will distribute the burden of repayment with sufficient uniformity for all practical purposes.

Thus far Equal Instalment bonds have had their greatest vogue among Canadian municipalities, although some American industrial obligations are of the class.

338. *Long Term Bonds* and *Short Term Bonds* are self-explanatory terms. The conditions governing the expediency of issuing and purchasing the one or the other are treated in various places throughout these pages as indexed. Sufficient here that most

short term loans are an emergency resource on the part of the obligor—from the short time notes of the Federal Government issued by Secretary Chase during the Civil War, to the railroad and industrial notes that are put forth when money rates are high, pending the time that long term loans will be accepted at rates of interest advantageous to the corporation. Commercial paper is the species of short term obligation that is founded on the best principles of credit.

339. As far as the expression "deferred" is applied to bonds it must signify what it does in deferred stocks—in antithesis to preferred stocks—the postponement of payments. *Deferred Bonds*, then, are such as do not receive interest, or at least the maximum interest they are to receive, until certain conditions have been fulfilled respecting earnings, or an interval of time. Income Bonds, therefore, are potentially of the Deferred class. Austin, Texas, Refunding bonds of 1931, bear 3 per cent. interest for the first five years, 4 per cent. for the next 10 years, but the maximum 5 per cent. is deferred until the last 15 years. Respecting the functions this issue performs, it is Refunding, Adjustment, and Deferred.

340. When the payment of the *principal* is deferred, but there is no change in the status of the mortgage or other security, the issue may be called Extended. New *Extended Bonds*, with the proper number of coupons, may be created to replace the old bonds, or the facts and terms of the extension, with the changed interest rate, if there has been a change, may be stamped or printed on the old bonds.

341. *Perpetual*, or *Indeterminate* Loans are another class with a self-explanatory title, which has been discussed elsewhere in this book. If they are coupon-bearing, the bonds will probably be replaced with new paper when the coupons on the old bonds are exhausted. The Public Service Corporation of New Jersey has outstanding Perpetual, Deferred, Interest-bearing Stock Trust Certificates, although the company is wise enough not to call them by this name.

342. Division According to Maturity as Affected by the Payor's Option. *Redeemable*, *Callable*, or *Optional Bonds* are so entitled because the maturity of the loan is affected by the payor's right to retire the obligation before the obligatory maturity date. But the privilege to retire usually can be exercised only on an interest day or after some weeks' notice. The redemption feature is considered a disadvantage to the investor, particularly in municipal loans,

112 CLASSIFICATION AND DESCRIPTION OF BONDS

which are usually retirable at par;¹ but when the bonds may not be redeemed except at a premium sufficiently high so that the proceeds may be invested in another instrument of like safety but with greater returns, no real disadvantage exists.

343. Although the privilege of redemption may permit a company to refund its debts at a lower rate of interest when its credit becomes greater, or when it can, by so doing, avail itself of lower interest rates, it is not solely for such purposes that this right is reserved;—but rather to place the company in a position to consolidate its mortgages, reorganize its affairs, or to change its scheme of financing in any other way that may seem desirable.

344. Since the net return from a redeemable investment depends on the length of time the loan has to run, and the redemption value, it is desirable to establish certain rules for the guidance of those who seek this net return. The rules are given in the chapter on the *Use of the Bond Tables*.

345. Issues that may not be called by the payor are *Irredeemable Bonds*. To avoid confusion the denotation of Irredeemable Bonds should not be extended, as it commonly is, to cover what we entitle here Perpetual or Indeterminate Loans.

346. *Division According to Maturity as Affected by the Payee's Option.* Under certain circumstances a loan may be terminated at the option of the payee as well as of the payor. In the effort to make real estate bonds marketable, real estate companies sometimes give their bonds "cash surrender value," as it is called in insurance. That is to say, after a period, which may be two years, the purchaser may return his bond and receive the cost price plus perhaps 3 per cent. per annum after deducting what has been paid him in interest. Since the interest he has received is always more than 3 per cent. this provision is tantamount to an agreement on the part of the company to repurchase the bonds at a discount which increases as the loan grows old.

347. The writer knows of no title by which this class has been denominated. They are *Optional* as regards the payee, but this term offers no distinguishment from bonds *Optional* or *Redeemable* by the payor. In want of a better suggestion, the writer ventures to submit the title *Cash Surrender Bonds*.

348. *Convertible Issues* as a form of bonus bonds were common enough in railroad finance in the sixties and seventies, and are

¹ An exception is the Cabell Co., W. Va., Court House and Bridge bonds, redeemable 6,000 yearly at 102.

now revived to a greater popularity than ever, not only among the railroads, but among many other kinds of corporations. The bonds are convertible generally into other securities of the same corporation, but sometimes into the securities of another corporation. Or again, the bonds are commonly convertible into stock; but occasionally, if unsecured (i.e. notes or debentures), or if not sufficiently secured they may be convertible into secured bonds as in the case of the Hudson Companies' two issues of Convertible (Collateral) 6 per cent. Notes.

349. When it is the intention to convert bonds into stock it must not be forgotten that conversion is seldom possible when the transfer books are closed; also that accrued dividend, as well as accrued interest, must be reckoned, unless the dividend and interest fall on the same date, or are of the same rate; and that one selling and one purchasing commission must be paid.

To complicate matters further, different companies have different ways of figuring accrued dividend;—it may be from the payment of the last dividend, or from the declaration of the present. Furthermore, there is no general custom regarding the treatment of fractional shares, when at the conversion price the bond is not a multiple of the stock.

Fewer difficulties are met in converting bonds or stocks into other bonds, for interest dates almost invariably coincide. Therefore there is only the probability of an adjustment for difference in interest rate.¹

350. The basis of the popularity of issues convertible *into stock* is the genuine alliance in them of investment and speculative virtues. It is as if for once oil and water would mix. As an investment these bonds are to be judged like any other corporate obligation,—quite irrespective of the convertible feature. It will be found that they are usually debentures, or at best, junior liens. Sometimes, however, they are the sole or major obligation of the issuer.

351. As a speculation, an issue convertible into stock will advance with the stock—there is no limit when the stock reaches the price at which the bonds are convertible and until and unless the company has the right to retire the issue and exercises that right. On the other hand, however low the stock may fall, the bonds will not decline below their true investment value as an obligation of

¹ For further details and helpful tables consult the excellent work, *Convertible Securities*, Montgomery Rollins, Boston, 1909.

the company; and they may not decline even to the investment level because of the potential speculative value of the conversion privilege. It is not, of course, necessary to convert the bonds to realize profits. The sale of the bonds themselves will probably suffice.

352. Bonds convertible into stock, but especially convertible bonds of industrial and other corporations that have for sale a commodity which is not restricted by law or custom as to price, have possibly an advantage over other bonds in case the increase in the world's supply of gold shall lessen the purchasing power of money. For, as the purchasing power of money declines, and commodities advance in price, the corporations prosper that control or manufacture commodities, and the stocks of those corporations increase in value. As the purchasing power of money declines, so also the purchasing power or value of a fixed sum like bond interest or principal. But the convertible bondholder is prepared for either event: the increase in the value of money or of commodities. Therefore, as the saying is, "heads he wins with the stock, and tails he wins with the bond."

The application of this gold supply theory to convertible bonds will readily be understood by reference to the chapters on *The Course of Bond Prices*.

PART II

CIVIL LOANS

CHAPTER XII

UNITED STATES BONDS

353. The scope of this work does not bring us into the general field of government securities as investments. It is perhaps as profound a subject as any in the category of finance. Its successful solution in France's case was her salvation in the early seventies, and is now her perpetual boast. Our government bonds, however, do not serve the same purpose as French *rentes*, for our fiscal system is entirely different, and it is a far cry, even, from our national funds to British consols.

354. Nor are we concerned, except indirectly, in the relation of government bonds to our banking system.¹ For the purpose of an elementary treatise on the principles of bond investment it is sufficient to confine the discussion to the desirability of United States government bonds for private purchase.

355. Net Yield. At the time these pages were written the 4s of 1925 were selling at 122½ and yielded an income of 2.40 per cent. on the investment. The State of Massachusetts tax-exempt long term 3½s were selling on a 3.20 per cent. income basis. During the Civil War Massachusetts paid the maturing principal and interest on all her obligations in gold. Her credit, in spite of a very large state debt, is of the highest. Both of the issues mentioned are obligations created by sovereign states, against which, in default, there is yet to be found practicable means of redress; and for the security of which, therefore, as stated in the following chapter, there is nothing but the sovereign credit. If, then, the difference in income between the Government 4s and the State 3½s, amounting to eight-tenths of 1 per cent., represents the difference in degree of security, there is much to be said in favor of United States governments for private investment. The difference in income yield would have been still greater, namely one and four-tenths per cent., had we cited State of Massachusetts long term taxable 3½s, registered

¹For the relation of national bank note circulation to United States Bonds, see the appendix.

or coupon, selling on a 3.80 basis. If now we compare the coupon 3½s of this taxable issue with the Government 2s of 1930, selling at 104.75, a 1.75 per cent. basis, we find a difference in yield of over 2 per cent., assuming that taxes are not paid on the Massachusetts coupon 3½s,—often an assumption not contrary to fact, as the grammarians would say. If this ratio of yield represents a proportionate ratio of security, therefore, the United States government 2s of 1930 are more than twice as safe an investment as long term Massachusetts taxable coupon 3½s. This sort of reasoning smacks of the Middle Ages, but it is when thus reduced to an absurdity that the error becomes most plainly apparent of attempting, in most classes of bonds,¹ to determine the relative security of different classes, or of different bonds in the same class by the respective rates of yield. Yet this is by no means an uncommon practice. In the case of government bonds it is manifest that other influences are at work adjusting the rate of income beside the feeling of security that sound public credit inspires.²

356. Causes of the Low Rate. Yet it is not to be denied that the United States is able to float a new loan on less than a 2 per cent. basis, an achievement, we believe, possible to no other nation, largely because of her unsurpassed credit. From the appointment of our first Secretary of the Treasury to the present there have always been at hand those who would remind an improvident Congress or a forgetful public that credit is confidence, and that confidence is best fostered by the prompt discharge of obligations. To the example set by the United States is due, in large measure, the fact that national debts the world over are no longer looked upon so much as perpetual loans, but rather as promises to pay. The history of our own public debt is a record of obligations almost unavoidably created and speedily discharged.

357. History of the National Debt. The Treasury Department, created in 1789, faced a national debt of \$79,000,000. In spite of a new loan of \$13,000,000 raised for the purchase of Louisiana the debt had been reduced in 1812 to \$45,000,000. The costly four years' war with Great Britain increased this amount to \$127,000,000, but the entire public debt was paid by 1835. The Mexican War and the payment of the Texan indemnity created a new debt of \$68,000,000 in 1846, and Indian wars and other troubles increased this until at

¹ A notable exception is municipal bonds.

² Our new municipal issues yield nearly 3 per cent., but they have not the same investment availability with the consequent artificial market.

the opening of the Civil War it amounted to \$90,000,000. The enormous expenditures of the next four years brought the total up to \$2,800,000,000, the high-water mark. Since 1865, in spite of large bond issues to facilitate the resumption of specie payment in 1879, and to increase the gold reserves in 1894, 1895, and 1896, and to finance the Spanish War in 1898, and to purchase the Philippines in 1904, and to build the Panama Canal in 1906 and 1908, our debt has shown a constant tendency to decrease, and is now slightly in excess of \$1,000,000,000, with the smallest interest charge of any of the great powers except Germany.

358. The United States a Debt-Paying Nation. The United States has appropriately been called a debt-paying nation. Our latest issues, the Panama Canal 2s of 1936 and the Philippine Land Purchase 4s of 1934, are not in such demand as the old 2s, redeemable after February 1st, 1925, because, apart from their interest rate, the two former issues are redeemable after August 1st, 1916, and February 1st, 1913, respectively, and purchasers of the public funds have every reason to believe that, barring extraordinary conditions in national finance, the several charges will be acquitted at the earliest possible redemption periods.

It has been a question debated by economists whether it is sound policy for a nation to discharge its obligations at such heavy sacrifice of immediate prosperity as the United States did in the years following the Civil War. It might have been wiser to have shared the burden of war-costs with later generations, and to have devoted the resources thus conserved to an earlier resumption of specie payment. If the tax-drain had been less in the late sixties, the process of recovery might have been more rapid. But whatever the merits of the case the fact remains that a faithful adherence to the debt-paying policy has been a most important factor in the establishment of our present unsurpassed credit.

359. National Resources. The reliance of the investing public upon our national sensitiveness to funded obligations¹ is fortified by knowledge of our ability to meet them. No other nation has within its proper confines our diversity and wealth of resources. No other nation is so favored by climate and geographical position for self-subsistence, not only in physical, but also in industrial, commercial, and financial life.

¹ It is a pity this sensitiveness does not extend to the payment of just claims of other kinds. The United States is proverbially dishonest in its treatment of personal claims, even after they have passed the claims court.

360. A Home Market for National Loans. So latterly we are finding ourselves less and less in want of foreign aid for the exploitation of the undeveloped portions of the country. The industrial depression of the winter of 1907-1908 was felt most severely in the older states, and the most active investment demands, when signs of revival appeared, were from the Middle West. Our national credit, therefore, unlike Russia's, has little to fear from the disposition of foreign capital. We shall probably always be able to market our national loans within our borders.

361. National Bank Demand. A contributory cause of the low rate of yield on non-insular Governments is the needs of our peculiar banking system. National banks are required, under the National Banking Act, to deposit with the Treasurer of the United States, upon issuance of their charters, at least \$50,000 par value in United States registered bonds, unless their capital is less than \$150,000, in which case the amount of the bonds deposited shall be equal to at least one-fourth the capital. If circulation of an amount in excess of the charter bonds is taken out some issue of registered government bonds, equal in amount at par to the circulation desired, is deposited with the Treasurer. A third source of demand is the call for government bonds from national banks designated by the Secretary of the Treasury as depositaries for the public moneys. The face value of these bonds will equal the sums deposited. But in times of emergency the Treasury Department permits the deposit of other high grade bonds. From the quasi-artificial demands arising from these three kinds of national bank requirements (not to mention any others), the private investor has to compete in purchasing government funds.

362. Price Fluctuations; Past and Future. The price of government bonds, of course, like that of all other commodities, is subject to economic law. The floating supply and the demand vary from year to year and even from day to day. The fluctuations are not so rapid nor sharp as in most other issues, and are the result of somewhat different influences, but in the course of years they are much greater than most people suppose. In 1901, for instance, the 4s of 1925 sold at about 140. The price at writing was about 122, a loss of 18 points, or 13 per cent. A brief review of past great price movements in the securities may be instructive. They will be more easily appreciated if put in terms of approximate income yield.

363. Fluctuation in Times of War. It is in time of war, naturally, that government credit is most impaired. In the earlier periods of

our history when the Central Government existed by mere sufferance and the primacy of statehood and the right of state secession were not yet treasonable doctrines, armed conflict was even a more serious thing to investors than it would be under present conditions. The War of 1812 caused the issuance of loans upon a basis of from 7 to 8½ per cent., and the War of Secession upon a basis of 12 per cent., maximum. No bond value tables at our command are extensive enough to record the price of the Old 2s of 1930 on a 12 per cent. basis.

364. Although a future war of magnitude would not threaten the disintegration of the country, yet it might have sufficient train of evil consequences to work temporary havoc to our credit; for a great conflict, with or without blockade, seriously curtails income from customs duties, and almost over night empties an unprepared treasury. The relief invoked through war-taxes is unwelcome and tardy. Then recourse must be had to large and numerous loans when people are least desirous of taking them up. At such a time, if ever it comes again, there will be great shrinkage in the value of our public funds.

365. *Fluctuation in Time of Panic.* In time of panic, on the other hand, experience has shown that no other security will so nearly hold its own. When almost all industrial and commercial enterprises are under suspicion, government securities, by force of contrast, seem all the stronger. It is well known to bond dealers that the first securities to enhance after business depression are the highest grade bonds, especially municipals. The principle that begins to work in this case is the one that is operative in government bonds at the worst of times. Furthermore there is usually less pressure to liquidate among the classes of institutions and investors that hold government bonds, and for the bonds that are offered a ready market may be had among the stronger national banks. In the panic of 1893 the average extreme variation of governments was about 5 points, and in 1907 5.7 points¹; for the better class of municipals and railroads during these years the variation was from twice to four times as much.

366. *Effect of Banking and Currency Measures Upon Prices.* Besides the effects of war and panic, and of the rise and fall of ordinary interest rates, to which all securities are subject, there is always to be considered the possibility of special banking and currency

¹ The extreme variation of the 2s and 3s was only 3.05 points, but the average was raised by the greater variation of the less active 4s.

legislation that will alter the status of government bonds as compulsory banking investment and in this way establish a new basis of prices, perhaps higher, but in all probability lower than the present. Simply the withdrawal of circulation, with its consequent release of deposited government bonds, has a tendency to soften the market.

367. Our banking system is so notoriously bad that some radical change seems imminent, but its effect on bond prices can only be surmised. It was only fourteen years ago that as the result of unwise currency laws the United States was obliged to issue over \$162,000,000 of bonds to draw gold into the Treasury to maintain the parity of currency issues; and the loan had to be put out on about a 3½ per cent. basis. There is hardly a limit that could be put on the range of price possibilities should we change from a debt-secured currency system to some rational system based on commercial assets. Over 50 per cent. of all our government bonds have been bought by national banks (though the banks sometimes borrow of brokers for this purpose) and deposited in the Treasury to secure note-circulation. Probably it would go hard with present holders should the price support from the needs of national bank circulation be withdrawn.

368. Desirability of United States Bonds for Investment. Therefore, as one realizes the variety of influences which may in the future, as in the past, affect the value of United States government bonds, he may think with some reason that present prices are too high to justify the investment of private capital in them. Yet it should not be forgotten that no other form of security is so readily convertible into coin of the realm, especially in times of financial panic.

369. Details Concerning United States Bonds. The credit of the United States is now loaned only in furtherance of strictly national and public enterprises. The bonds bear interest at 2, 3, and 4 per cent., and are in both coupon and registered form, and in denominations of \$20, \$50, \$100, \$500, \$1,000, \$5,000, \$10,000, \$20,000, \$50,000. They are bought and sold on the New York Stock Exchange, but most dealing is done outside through banking houses, particularly those making a specialty of the public funds. Like odd lots of stock, denominations of less than \$1,000 cannot be bought or sold quite at the market. Coupon bonds find the readier sale and generally bring fractionally better prices. They are convertible at the Treasury into registered bonds of the same loan without cost except transmission charges. Registered bonds are not convertible into coupon,

but as the demand for coupon bonds is slightly better, the sale of the one and the purchase of the other are accomplished without difficulty. Reference to the advantages and disadvantages of the two forms is made in Section 326 and following. The transfer of ownership in registered government bonds is such a technical proceeding that coupon bonds are to be preferred for temporary investment when accommodations are at hand for their safe keeping. In the Appendix will be found a discussion of United States Bonds in relation to national bank note circulation.

CHAPTER XIII

THE HISTORY OF STATE DEBT¹

Scheme of Classification. Although, as we have seen, various kinds of bonds, there are some technical terms, what are commonly called Municipal Bonds, still the more reasonable line of severance between State Government Bonds on the one hand and Municipal Bonds on the other. Not all civil and political divisions are strictly governmental divisions; many are created for the sole purpose of internal administration, and funds raised from the creation of debt, and the distribution of its proceeds. There is a division of Tax Bonds or Civil Loans, and District Bonds, etc., as the lower. This division will be clearer when we have seen the state and municipal debt.

Constitutional Law. One of the fundamental principles of law relates to the so-called sovereignty of the general nature or scope of this familiar principle to financial matters concerns us.

Reserved by the individual states at the time of the Revolution was a large measure of autonomy in their financial affairs. The states could not coin money,² emit paper currency, but gold and silver a tender in payment of debts on imports or exports or tonnage, and the obligation of contracts, (Constitution, Article I, Section 10, Clause 1), within four years from the adoption of the Constitution the specific concession that such powers

should be read not only by those interested in state and municipal credit, but also by those interested in the American government or municipal issues of any

obtained by them under the Articles of Confederation.

as were "not delegated to the United States by the Constitution, nor prohibited by it to the States," were "reserved to the States respectively, or to the people" (Amendments, Article X). This and one or two other of the ten amendments that were adopted before the close of 1791 were a direct result of the still growing tendency toward what was called "state sovereignty." If not mentioned in the Constitution itself, the right of the states to create debt in the manner of the National Government, and upon the basis of state credit, as in the days of the Confederation, is certainly implied in the Tenth Amendment.

Therefore we derive the basis of our division particularly from this residual sovereignty of the states,—from their ability to contract debt without the let or hindrance of a superior power, as distinguished from the dependence of the civil divisions of the states upon statute and state constitution.

372. There is, however, another feature of American constitutional law that associates bonds of the commonwealths still more closely with those of the nation, and draws us further into a study of their character and history. There was nothing of especial moment to state credit, about the Tenth Amendment or any of the other provisions that had gone before. In fact the ordination of finance, important as it was in the years of depleted resources following the drain of the War for Independence, took a place, in the minds of the people and of the framers of the Constitution, quite secondary to the development of a political system which was to be the wonder and study of continental Europe. Nevertheless this instrument itself contained the assurance that "all debts contracted, and engagements entered into, before the adoption of this Constitution, shall be as valid against the United States under this Constitution as under the Confederation" (Article VI, First Clause). That no mention is made of state debts is not to be wondered at; it was hardly a subject for treatment in such a brief document as the National Code.¹ And besides, the bulk of the Revolutionary War debt of the states had been assumed by the Federal Government.

¹ State debt was indeed touched upon nearly a century later, in the Fourteenth Amendment, Section 4, inhibiting the states from assuming or paying obligations incurred in aid of rebellion against the United States; but this was passed in that reactionary period when the cry of "States Rights" was anything but a popular slogan, yet was inspired not so much by opposition to state independence in fiscal matters as by desire to make impossible the financing of future uprisings.

However, from the tenor of the whole Constitution, particularly from that clause of the First Article prohibiting the states from the impairment of the obligation of contracts, one would be led to expect an integrity in financial affairs on the part of the states, safeguarded by law and by constitution, similar to that national integrity which was soon achieved and has since been preserved almost without interruption. But this was not to be the case.

373. In 1792 a citizen of North Carolina¹ brought suit in the Supreme Court of the United States against the State of Georgia, and thus raised the important question,—again involving the limits of state sovereignty,—as to whether a state could be sued by an individual. The majority of the Court decided in the affirmative, Mr. Justice Wilson giving the opinion and Chief Justice Jay supporting. This of course aroused the Anti-Federalists and resulted four years later in the ratification of the Eleventh Amendment, by the terms of which:

"The judicial power of the United States shall not be construed to extend to any suit in law or equity, commenced or prosecuted against any of the United States by citizens of another state, or by citizens or subjects of any foreign state."

It is possible that when the amendment was submitted to the legislatures of the states for ratification, although the idea of state repudiation was wholly foreign to the spirit of the times, some pressure was brought to bear in the interest of the already harassed tax-payers who feared the increased burden that a final settlement of the many unassumed outstanding war-claims would involve; but, —to repeat,—political considerations all over the Union were paramount at the time, and the issue was the logical result, rather of hostility toward further centralization of government than of local resistance to the tax-burden.²

374. Georgia, naturally, was the vortex of this embroilment. Upon the decision of the Supreme Court in the case of *Chisholm v.*

¹ *Chisholm vs. Georgia*, reported in 2 Dallas.

² To this origin Mr. John Hume, in his well-known articles on repudiation in the *North American Review* (1884, Vol. 139, p. 564 and elsewhere), attributes the Eleventh Amendment, and by manifest implication traces the subsequent evils of "state roguery." Probably he got his suggestion from *The Nation* for January 31, 1878, which says, "The reason for engrafting such an inconsistency upon a code that professes 'to establish justice' among men and communities was the embarrassed condition of the States at the time the Federal Union was formed." This traditional view, widely held and important if true, is controverted by the facts.

Georgia, the legislature prohibited, on pain of death, any attempt on the part of United States marshals to collect the judgment. No state would then have proceeded to such extremes in language and measures merely in the interest of a depleted exchequer. Nothing could condone such a course except encroachment upon a cherished prerogative. The spirit of repudiation, then, does not date back to the youth of the Republic.

375. It is true that even prior to the agitation in 1793 for this amendment Delaware had declared in her second constitution that suits might be brought against her. It is true also that in 1796, before the adoption of the article, Tennessee had granted her own citizens the same right, and that in after years, as the feeling in regard to state sovereignty became less tense, seventeen other states incorporated this provision in their revised constitutions. But some of the seventeen have since stricken it out, only five¹ have passed supplemental statutes making it possible to enforce the provision, and in most, if not all, cases the wronged bondholders have been brought to realize that it is one thing to sue an unreceptive state, under its own laws, before its own judges, and another thing to seek redress before disinterested courts deriving their authority from the National Government and presided over by officers with life tenure.²

376. Except for that clause of the Fourteenth Amendment disavowing all obligations incurred in aid of secession, the bearing of constitutional law upon the subject of state debt ends with the Eleventh Amendment. The misuse that has subsequently been made of the Amendment is a matter for further study. But before continuing let us revert once more to our classification. We now know only too well that State Bonds are analogous to Governments proper and in contrast to Municipals in this further respect that there is no practical remedy at law against their default. Since both are the obligations of sovereign powers, we must turn to history for an adjustment of their valuation upon a basis of credit.

377. *Debts of the Commonwealths: Default and Repudiation.* In the early years of the Republic the American people were exceedingly

¹ Indiana, Wisconsin, Nebraska, Nevada, and Mississippi.

² Since one sovereign state may sue another, a holder of North Carolina bonds donated \$10,000 of them to South Dakota, which carried the case to the United States Supreme Court and received in settlement \$27,410. Based on this success, attempts have been made to persuade New York, Michigan, Rhode Island, and Nevada to sue.

careful of their financial standing. As we have said, at the close of the War of Independence the Federal Government assumed, for a time, the larger part of the debts of the thirteen states. It was no part of the doctrine of Hamilton and his Federalist successors that a large national debt was a public blessing; and later, under the peace administration of the Republicans, aided by the wise operations of Gallatin, Hamilton's policy became traditional in the Treasury Department, to the material reduction of the national debt (see §§ 356, 357). The War of 1812 of course postponed for years any idea of its immediate extinction, and movements toward that end were again retarded by the financial depression of 1819-22, particularly because the fiscal policy of the Government made the Treasury largely dependent for revenues on import duties. But without further serious setbacks the national debt gradually dwindled away and was finally paid off in 1835.

378. Up to this time a conservatism had been displayed by the commonwealths also. In 1825 the aggregate outstanding loans of the states amounted to \$13,000,000,¹ or \$5,000,000 less than at the time of national assumption in 1790. By 1830 they had increased to \$26,000,000, and by 1835, the year of the extinction of the national debt, to \$46,000,000; but although the increase was in greater ratio by far than the increase in population, and somewhat more than the increase in wealth,—all three being assisted by great industrial development and the accession of new states,—still it could not be called excessive or alarming.

379. But the next five years entirely changed the status of things. In this lustrum the country began to reap what it had sown. In many respects the seven years preceding the crisis of 1837-38 found "one of the most extraordinary financial periods—perhaps the most extraordinary period—which the world has ever seen."² The results of a general Continental peace were reflected in the demand for our manufactures and in the growth of our export trade; the seasons had been favorable to crops; virgin territory had been opened up to agriculture and mining; foreign commerce had been stimulated by the use of bills of exchange; for various causes connected with national banking and currency laws, state and local banks had rapidly augmented their capitalization and deposits and consequently their notes; on the basis of this inflated currency and the

¹ Round amounts are sufficient for the purpose in hand. The exact figures are in doubt.

² Hon. B. R. Curtis, *North American Review*, 1884.

resultant inflation of prices, credit became unduly extended, and, to use the familiar but appropriate figure, nothing was lacking but a first occasion to puncture the financial bubble.

380. It is not surprising, however, to one at all conversant with the history of the times, that these same conditions which made possible the extinction of the national debt should effect an opposite result upon state debt. These causes are both general and particular. The national moral consciousness has always been more sensitive and more sober than that of the constituencies. There seems to be a close connection between magnitude and integrity in American political units. This truth has been plainly evident in our history from the first deliberations of the Continental Congress to the present hour. It is undoubtedly inherent in the peculiar composition of our body politic, but accentuated by local causes, geographical, ethnological, and historical, which will in time disappear, and are even now disappearing under the influence of assimilative processes. This national moral consciousness, particularly well represented for the most part by the early Presidents and by the Secretaries of the Treasury, seized upon these seven fat years beginning before 1830 to discharge the national obligations and even to distribute surplus revenues to the states. But the states for their part saw in their own swelling revenues only the opportunity to embark in speculative enterprises of internal improvement upon such a vast scale, and by means of such enormous bond issues, that in some cases a tax of hundreds of dollars per capita would have been necessary to liquidate them.

381. Widespread antagonism toward further extension of the Federal functions undoubtedly helped preserve the Government from the same temptation. Undoubtedly too these public undertakings by many of the commonwealths originated in perfectly good faith; not honor, but sound business sense, was lacking. Nowhere is the naive speculative-patriotic spirit of the times, as it affected state debts, more aptly illustrated than in the first Constitution of the State of Michigan, which came into the Union in 1837, at the culmination of the period of prosperity. This instrument made it "the duty of the legislature, as soon as may be, to make provision by law for ascertaining the proper objects for improvement in relation to roads, canals, and navigable waters." And the lesson of the seven succeeding lean years was so poorly learned and quickly forgotten that Florida entered the Union in 1845 handicapped by

its constitution with directions to its General Assembly of the same purport and couched in almost the same words.

382. It is not so easy on the other hand to realize to-day the extent of the temptation toward extravagance under which the states labored. Not only was credit to be had for the asking, but lack of the most elementary improvements was general. We of to-day who talk about our "inadequate transportation facilities," to improve which we permit our capitalists to bond public utilities for double their first cost, should remember this in considering the public expenditures for railroad ownership and aid in the thirties; and however we deplore the infelicities of our present systems of currency and banking and their inadequacy to cope with financial crises, we should remember the heavier burden borne by our predecessors in the repeated cessation of payment in specie and the inevitable depreciation of the currency.

383. Yet when all allowances are made with understanding and sympathy, the fact remains that in 1836 the United States had paid off its funded debt, and for some years, in face of the times, strove to keep free from foreign obligations; whereas the aggregate debt of the states, which in 1835 we found to be \$46,000,000, grew in the next three years to \$175,000,000!

384. There was no one section of the country conspicuously infected by this debt-making fever, although, in the light of subsequent events, we are accustomed to refer vaguely to "the West and South." New England to be sure, the most mature large geographical division of the country, always conservative, and in less need of material exploitation and social advancement, at this time withheld itself for the most part from bond issues. Maine, parted from Massachusetts in 1820, assumed, without question, one-third of the Massachusetts debt, though by no means possessing one-third of the territorial resources of the original undivided unit,—and in so doing set a praiseworthy precedent that West Virginia, created of her own volition after and as a result of the Civil War, with one-third of the territory of old Virginia and more than one-third of the resources, has not seen fit to follow.¹ Maine's debt thereafter was slowly reduced, partly with the help of indemnity money from

¹ On March 6, 1911, after a controversy before the courts of Virginia and the Federal Government almost as long as the famous *Jarndyce vs. Jarndyce* case was in chancery, the United States Supreme Court adjudged that the State of West Virginia was equitably obliged to pay \$7,182,507 of the debt of the old State of Virginia. The amount of interest will probably be adjusted by a master.

Great Britain, and has never since been an object of serious concern to her people. New Hampshire, with credit as solid and enduring as her rock-bound hills, always was, and now is, loath to incur debt. The difficulties of the late thirties were scarcely felt by New Hampshire and no bonds or stock were outstanding from that time till the War of '61. Vermont had no debt till 1859; Connecticut and Rhode Island, no debt from the Revolution till the Civil War. Of all the New England states, Massachusetts, aware of her own resources and power, then as now, was the only commonwealth somewhat profuse in creation of indebtedness. How history repeats itself!

385. The Middle Atlantic states had no such reticence. New Jersey indeed did not bond herself before 1838, and in her constitution of 1842 set an early and desirable example by limiting the debt to \$100,000, with the now common exception for purposes of war, etc., as the result of which her conservative fiscal policy has been more in alignment with that of the New England states than with that of her neighbors; and Delaware, too, with no debt at all prior to the War and none since worth considering, should be favorably mentioned. But New York, Pennsylvania, and Maryland, although acquitted on the score of honor, acted in those troublesome, debt-incurring times with an unwisdom forgotten only because retrieved. The causes for all three were about the same: the financing of needed canal construction and improvement, and the aiding of the railroads. A beginning was made in moderation, and then, when enthusiasm had been aroused and discretion thrown to the winds, a riot of contractual obligations was entered into with much anticipation of what the money raised was to be spent for, and little of how it was to be repaid.

386. The history of New York's state debt is too well known to require much comment. Although the burden in the early forties was critically large, the Empire State always managed to take care of principal and interest when due. It is not so well known, if indeed it has not generally been forgotten, that both Pennsylvania and Maryland had to suffer the shame of temporary default. Both were compelled to stop the payment of interest in 1842, owing particularly to state construction of canals, and to the abolition of direct taxation during the hard times preceding. Pennsylvania resumed payments in 1845 in "relief notes," which then were the state currency; they were speedily retired. Maryland had made up all delinquent interest by 1848. The majority of her citizens acted dur-

ing these years in good faith, although the body of those dishonorably inclined rose to the dignity or indignity of a Repudiation Party. In 1837 Maryland had paid her debt interest in gold, as did Massachusetts during the Civil War,—and both at times when the banks had suspended specie payment.

387. Although debt history in the depression of 1837-45 cannot be geographically divided, it was inevitable that the less developed West and South should suffer more than the East, and that the result should be written in financial history. It is for us to consider, however, whether the West and South, in whole or in part, both in this depression and in those subsequent to it, maintained that sort of financial integrity which, in spite of temporary reverses of fortune, gives to a nation, a municipality, a firm or an individual, a credit that is worth as much to the holders of the debtor's paper as the realizable assets itemized upon the treasurer's books.

388. *The First Repudiation Period.* It is hardly necessary to say that Pennsylvania and Maryland were not the only states to default for a time in the seven lean years following 1837. Indiana, in 1840, Illinois, in 1841, Michigan, Florida, and Mississippi, in 1842, did likewise. This is not only the ordinary geographical order, and the temporal as well, but it marks perfectly the degree of obliquity involved. Of the four Northern states, only the last, Michigan, did not reimburse all creditors to the full. Michigan acknowledged and acquitted her obligations on all bonds for which she had obtained payment, irrespective of any benefits received from the money; but on such as she had obtained only part payment she acquitted the debt only in that part, even though title had passed to innocent holders. Of this entire list of seven defaulting states only the last two, Mississippi and Florida, were of the South, and only the last two, Mississippi and Florida, were guilty of deliberate repudiation, and of these two, Mississippi repudiated twice before the Civil War, and Florida once in each repudiation period.

389. We are concerned in this recital only with the history of state debts as it has a bearing upon state credit. It is to be hoped that in the study of history we may reach some broad and justifiable conclusions pertinent to the purchase of state bonds. We shall show that on these grounds it is legitimate to pass lightly over the defaults of the Northern states. To be sure almost all default, irrespective of time or locality, arose out of conditions that will never be met again in this country. Default was the result of an unwise zeal to hasten by arbitrary legislation, and, for the most

part, in undeveloped territory, the spread of material progress and the slow growth of institutions. And so, successively in the East, the South, and the West, it was the same story: state ownership of, or aid for canals, railroads, turnpikes, banks, and eleemosynary and educational institutions. But there is this all-important difference to the ending of the tale: barring Minnesota in war time, the North paid its debts and the South shirked them.

390. These states we have mentioned were not the only commonwealths in serious difficulties. Ohio, in the North, was one of the earliest to contract debts for extensive internal improvements, placing a foreign loan for canal and railroad purposes as early as 1825. The maximum amount of her debt, reached in 1845 (a total of over \$19,000,000), was a very heavy load to carry in those days; but before it was too late the state came to her senses, and in the new constitution of 1851, prohibited further aid for public improvements.

391. At about the same period Alabama, in the South, laid herself open to financial ills by subscribing to the stock of the state bank and its branches to the extent of some \$8,000,000. Relying on the income of this stock, like Pennsylvania she abolished direct taxation,—in 1836. When as the result of the suspension of specie payment the bank became insolvent in 1842, the state avoided default during the ante-bellum period only by resort to now doubly burdensome taxation. Since the intent of these two states at that time was honorable, but their financing only a little less hazardous than that of the defaulting but non-repudiating Northern states, there is no reason for discriminating against the former or in favor of the latter because of a brief and unavoidable suspension of interest payments.

392. On the other hand it is but just to mention the two other Northern states, Wisconsin and Iowa, which, organized as territories and admitted into the Union during the times of which we write, had to look as far as the Atlantic seaboard, either before or after the Civil War, to find their fellows in reluctance to incur indebtedness or in preparedness to discharge it. All other states of the Union which we have not mentioned or shall not mention in this connection are clear of the charge of fiscal folly or dishonor, but all such states came into the Union after the War.

393. If the conduct of the five Northern states which defaulted in the forties, and of other non-defaulting states in both North and South, was indiscreet to the point of foolhardiness, it was not dis-

honorable. Undoubtedly even Michigan felt she was discharging her full moral obligation in refunding only that part of the issues for which she had been paid. But the conduct of the two Southern states that repudiated had no justification in ethics, if it had in law. The Governor of Mississippi, replying in July, 1841, to a letter from Hope and Co., of Amsterdam, who represented a large number of holders of the Union Bank bonds, made a brave show of five causes of unconstitutionality in the issue,¹ and Jefferson Davis, in the following month, with less logic and more Southron eloquence, abetted the course,² and the people by their subsequent elections to the legislature approved of the repudiation of the Union Bank bonds. In 1852 Mississippi made perfectly plain whether invalidity was the ultimate cause by repudiating by popular vote the Planters' Bank bonds on which there was not the slightest shadow of invalidity.³

394. Florida raised the excuse of invalidity on both occasions when it became convenient to withhold moneys due. The state had better grounds for default than Mississippi in actual inability to meet her obligations in full; but her two expedients to escape payment were much more pernicious as precedents, for the first was based upon the principle that a state on being admitted into the Union might be absolved under certain circumstances from financial covenants entered into by Congressional enactment when a territory, and the second upon the tacit understanding that the state courts were justified in returning interpretations and decisions biased to the popular will. Even Mississippi had not gone so far; repudiation there had met some opposition in the courts.

Before coming to the later repudiation period certain war-time cases are to be noted.

395. *War-Time Repudiation and Default.* In 1860 the legislature of Minnesota, following the will of the people, adopted an amendment to the constitution, forbidding the payment of principal or interest (except after a referendum) of the bonds issued in aid of the railroads. This was popular repudiation pure and simple, and utterly inexcusable because utterly unnecessary. The people indeed suspected with reason that fraud had been perpetrated upon them, just as the people of the South did after the Civil War. In Minnesota's case, however, the proved instances were not flagrant

¹ *Bankers' Magazine*, November, 1849, p. 345 et seq.

² *Ibid.*, p. 363 et seq.

³ *Scott, Repudiation of State Debts*, New York, 1893, (out of print), p. 42.

enough to be submitted in extenuation. The significance in this Northern state is that the ghost of repudiation would not down. Time after time that matter was brought before the people in one form or another, by the bondholders, the legislators, and the governors, and finally after an agitation continuing off and on for twenty years the State Supreme Court decided that the Amendment of 1860 was unconstitutional, and in 1881 the legislature passed a refunding act, compromising the old bonds at fifty cents on the dollar, but *with accrued interest*. That the people of Minnesota should for so long have been morally more obtuse than their agents and representatives is best explained by recalling the primitive condition of the state and its inhabitants at that time.

396. There is little more of vital interest to state debt to chronicle till 1870. It seems, however, to have escaped general notice by historians of American finance that as the immediate result of the War, Missouri was at one time heavily in arrears in interest on her debt, and that therefore it is with questionable legal right that the bonds of Missouri cities are owned by savings banks in certain states. In 1865 the amount was \$5,000,000, but thereafter was rapidly reduced. During the war Alabama paid the interest upon that portion of the debt we have mentioned which was held in London. This was possible and politic as her ports were open. Of course interest was defaulted on the portion held in the North. In 1865 all interest ceased. Alabama's subsequent troubles were due to the enactment of laws authorizing what may be called blanket indorsement, by the state, of railroad bonds upon a mileage basis. The amount of business folly concentrated in these acts is probably greater than in any hitherto perpetrated by a state legislature, yet the default and repudiation which followed as a matter of course was the most excusable of any because the state was sincere in its endeavor to meet its obligations. The Funding Act of 1876 by which it scaled its obligations about 50 per cent. closed this unfortunate period of its career.

397. The Second Repudiation Period. The second or reconstruction period of repudiation which we have now entered lasted from 1870 to 1884. During it nine states, all in the South, sought relief from their debts by repudiation:—Virginia, North Carolina, South Carolina, Georgia, Florida, Alabama, Louisiana, Arkansas, and Tennessee. To these some would add West Virginia, which has taken a repudiative attitude toward whatever is her just portion of the old Virginia debt. No satisfactory dates can be furnished as in the first period

134 STATE BONDS: THE HISTORY OF STATE DEBT

because in most cases defaults were so frequent. In some of the states, e.g. North Carolina, defaults around 1870 on some fresh portion of interest or principal were almost annual occurrences.

398. It is hardly necessary to say that the hardships of the war were reflected in the state debts. Of course the bonds of the Confederate States and the bonds of the seceding states issued for the purposes of the war were void.¹ Therefore the new debt burden of the South was not a direct, but an indirect result of the war. It was due particularly to the incompetence, extravagance, and rascality of the Northern war-governors and the black-Republican legislatures of their creating, and generally to the fact that the South had committed itself, even more deeply than the North, to the policy of railroad aid, both before and after the war. The accumulation of interest unpaid during and after the war was also a very heavy charge. From these various causes and some others, the debt of the repudiating Southern states, which in 1860 was \$87,767,690, had reached in 1870 the total of \$170,025,340, an increase of \$82,257,650, or 94 per cent.

399. While the funded obligations and in turn the annual tax burdens were thus increasing the ability of the states to meet them grew correspondingly less; for the assessors' value of taxable property (both real and personal, including slaves in the first period), which in 1860 was \$4,065,965,607, had declined in 1870 to \$2,014,614,448, a loss of \$2,951,351,159, or 52 per cent. Furthermore, in the prostration of the decade following the war the railroads, upon which the people had fondly relied to take care of such a large portion of the interest, were unable to meet their charges, and this source of anticipated revenue for railroad aid and state guaranteed bonds was almost entirely cut off.

400. *The Ultimate Cause of Repudiation.* If now, with the two periods of default and repudiation, thus roughly sketched, before us, we seek the main underlying weakness in state credit, we have not far to look. In the first place a careful distinction should be made between unavoidable default and general repudiation. The former evil was more prevalent in the first period and the latter during the second. In so far as default by a state was unavoidable, and subsequently redeemed, it has no bearing upon future state credit because it was the outcome of transitory financial conditions. As to wilful repudiation it is a curious fact that, with the

¹ By the Fourteenth Amendment.

exception noted in the case of Mississippi, and in one or two others, all efforts on the part of states to avoid payment of outstanding bonds has been on the score of illegality of some sort or other. In connection with this fact and in significant commentary on it, two others should be noted: first, that the dates of issue of the three hundred and odd millions of repudiated bonds do not fall in definite periods; but, second, that the dates of the acts of repudiation fall for the most part within the two periods outlined. Illegality, or invalidity, therefore is a pretext, or rather a convenient refuge, which ordinarily will not be resorted to, but only under the urgency of extreme material or moral impoverishment, or both.

401. This brief explanation leaves two facts unaccounted for: that the South did not default to the extent that the North did in the first period; and, that in both periods repudiation was the characteristic source of relief in the South.

402. Although the liabilities of the repudiating Southern states were doubled and the resources were halved in the decade 1860-1870, it would be difficult to prove that the South had retrogressed during this period in purely material well-being any more than the North and Middle West in the seven lean years following 1836. During that earlier period of distress the South had been engrossed in agricultural pursuits, had lived very close to the soil, and had given less political attention to those public works of improvement that benefited the people at large rather than the dominant classes. Therefore the South had not felt the earlier trial in its full severity. But when after the war and with the passing of the old plantation life the South sought to stimulate mercantile and manufacturing interests by those very artificial devices of railroad—and banking—aid which had previously proved the source of such disaster in the North, she laid herself open to the full effects of the more insidious temptations which the politics of the Reconstruction Period offered. And when, in addition to this, she came to realize in defeat the loss she had suffered of those dearly cherished attributes of state sovereignty that were particularly Southern, it is not surprising that moral disintegration followed. It would be hard to find in history a stronger combination of circumstances at work undermining a state's financial integrity.

403. But even this explanation is not sufficient to account for the conduct of Mississippi and Florida in the ante-bellum period, and for the very low order of business ethics revealed in the

speeches and correspondence of leading Southerners and in the minutes of Southern state conventions both before and after the war. In this connection Mr. Justice Curtis has been aptly quoted,¹ and the passage warrants repeating. Speaking of the repudiation of Mississippi he says:

"An intelligent foreigner, who feels a just indignation when he hears of repudiation, probably knows the difference between a Highland Chieftain and a London Merchant, but is ignorant that differences quite as great exist between the people of Mississippi and the people of Massachusetts. Probably there are few points in which these differences would be so likely to be exhibited as upon the matter of paying debts. To pay debts punctually is the point of honor among commercial peoples. But the planters of Mississippi do not so esteem it. They do not feel the importance of an exact conformity to contracts. It has not been their habit to meet their engagements on the very day if not quite convenient. Certainly they attach no idea of dishonesty to such a course of dealing. They mean to pay, but they did not expect when they contracted the debt to distress themselves about the payment. If a friend wants a thousand dollars for a loan or a gift, he can have it, though perhaps a creditor wants it also. We do not mean to intimate that there are no high qualities in such a character, but they are different from those which make good bankers or merchants; and therefore bankers and merchants ought not to expect such men to look at a debt just as they do."

If this racial distinction in business ethics between the North and the South has been better put elsewhere we have not seen it. Prof. Scott, who quotes the passage in his work just mentioned in the footnote, remarks that this comment, written in 1844, should be given more weight in explanation of the repudiation acts during the first period than of those after the war when a commercial spirit had been awakened in the South; and that is true. But it takes more than one or two generations born under a new dispensation wholly to eradicate racial characteristics as deep-seated as this. An illustration will presently offer. Meanwhile it is sufficient to observe that the perpetuity of tendencies is to be as implicitly expected in financial as in other affairs. The application of this truth to railways (and railway bonds) is made by Carl Snyder in his *American Railways as Investments*. He says:

"The law of heredity, so strong in the common affairs of life, obtains in some sense among railroads also. It is not for nothing that the Vanderbilt lines have been under control of a single family for more than half a century. It is not for

¹ Original article in *North American Review*, January, 1844; extract in Scott, *Repudiation of State Debts*, p. 234.

nothing that the Pennsylvania has never failed to pay a dividend for more than fifty years. It is not for nothing that roads like the Reading, the Erie, the Union Pacific, have been the footballs of stock-jobbing speculators and dishonest directors. The ownership of a road, the personnel of its management, may change absolutely, yet it is curious to note how amid all these changes its character for evil will sometimes survive."

And if this is the case with the railroad, developing amid adventitious influences, to what greater degree in the state, with its more settled institutions and its more stable polity!

404. The ultimate cause of state repudiation, then, is a low standard of business ethics. This low standard in a broad and general way may be said to be a racial characteristic, and eradicable only as the race changes, by process of fusion with immigrant population or otherwise; but its ill effects will rise to the height of disturbing state credit only when the pressure of the debt burden becomes distressing. And it is very probable that this burden will never again be intolerable in any of our states.

CHAPTER XIV

STATE BONDS: THE ELEMENTS OF SECURITY

SECURITY: INTANGIBLE ASSETS

405. When considering United States Bonds in a preceding chapter the question of security was taken for granted to a large extent,—these bonds being by common consent the safest form of security investment in America. In the present chapter security is the main theme, because there can be no general reason for preferring state bonds to municipals unless they can be bought with greater safety. And since there is no practical remedy at law for their default, nor (with minor exceptions) any sort of recourse to property in satisfaction of just claims, the emphasis of this chapter is upon those intangible assets of the state that are the chief inspiration of its credit.

406. *The Gauge of State Credit.* The credit of a *municipality* in this country may be estimated with reasonable correctness, by those not in a position otherwise to know, from the market value of its bonds, expressed in income yield. The yearly flotation of municipal issues, amounting in value to hundreds of millions of dollars, is so free, and the demand from vested interests so intelligent and steady, that one cannot go far astray who uses the gauge of credit that is measured by percentage of income from the investment. Concretely, the security behind a Municipal yielding $3\frac{1}{2}$ per cent. is to be presumed greater than that behind a Municipal yielding 4 per cent. There is no such free market by which to judge the credit of state bonds, as we shall observe later, so that it is necessary for the investor to acquaint himself at first hand with the factors that make for state credit.

407. *The Lesson from History.* The payment of loans to the sovereign depends on the will of the Sovereign; the will of the Sovereign is known only by past and present acts. We have examined the debt history of the states and have found it anything

but reassuring. Yet, so far as history is concerned, there is justification for placing the same confidence in the bonds of certain states that we do in the federal funds.

408. In the nature of the case, however, the power of discrimination based on the teachings of history is wanting in many bond buyers who may in other respects have a nice sense of investment values. These persons through lack of that range of vision which historical training encourages, are wont to consider state credit in its present legal and material aspects only. They may make the mistake of approaching all classes of securities by the same road. But this is not best; for industrial bonds, to illustrate, should be studied intensively; but state and equipment bonds extensively.

409. History, measured by events, is rapid in the making, and new epochs of good and ill press hard upon one another. In times of national prosperity a people so naturally optimistic as Americans grow forgetful; they overestimate their own qualities and resources and become oblivious to former reverses. Thus are created the regularly recurring industrial cycles,—more severe in this country than elsewhere. In the matter of state debts, therefore, it is best to be open minded. Who can tell what reverses in fiscal policy a generation may bring forth?

410. When in 1839, during that long depression of the first repudiation period, Baring Bros. of London inquired of Daniel Webster concerning "the measure of security which the purchasers of bonds issued by the states of the American Union would have for their investment," he wrote in reply:

"The states cannot rid themselves of their obligations otherwise than by the honest payment of their debts . . . they possess all adequate powers of providing for the case, by taxes and internal means of revenue. They cannot get round the duty, nor evade its force. Any failure to fulfil its undertakings would be an open violation of public faith, to be followed by the penalty of dishonor and disgrace; a penalty, it may be presumed, which no state of the American Union would be likely to incur. . . . I hope I may be justified by existing circumstances in closing this letter with the expression of an opinion of a more general nature. It is, that I believe that the citizens of the United States, like all honest men, regard debts, whether public or private, and whether existing at home or abroad, to be of moral as well as of legal obligation; and I trust that I may appeal to their history, from the moment when those states took their rank among the nations of the Earth to the present time, for proof that this belief is well founded. If it were possible that any one of the states should, at any time, so entirely lose her self-respect, and forget her duty as to violate the faith solemnly pledged for her pecuniary engagements, I believe there is no country upon Earth—not even that of the injured creditor—in which such a

proceeding would meet with less countenance or indulgence than it would receive from the great mass of the American people." ¹

Yet within two years Governor McNutt of Mississippi had recommended, and within three years the legislatures of Mississippi and Florida had voted, the repudiation of nearly \$9,000,000 of bonds.

411. In view of the fact that state indebtedness had doubled since 1835, it is not surprising that London, which had taken a large, if not the largest part of these securities, should have become anxious regarding its holdings. And it is not surprising to find that Webster should have been trustful, with the clean record of the states and the splendid example set them by the Federal Government. But it is surprising to find small bond houses and their salesmen, in this day of enlightenment on the moral delinquencies of states, urging the purchase of Southern and Western tax-secured bonds on the ground that they yield a larger income than the Northern and Eastern and yet *are equally well secured*. Such a statement can be made only by those who are uninformed or insincere.

412. **The Present Attitude of the States.** The other "intangible asset" of the state is the security behind its bonds which is inspired by its attitude toward its obligations. The present good faith of almost every state is beyond question. It is to be ascertained by these principal means:

1. The provisions of its constitution.
2. The reinforcement of its statutes.
3. Recent decisions of its courts.
4. The amount and character of its outstanding obligations.

413. **Constitutional Debt-Restrictions.** In a state's constitution its attitude toward the contraction or discharge of its engagements may be learned from several sections. The most important relates to debt limitations.

In the original constitutions of the older states these limitations are almost entirely absent. They usually show the working of bitter experience, as in the Ohio constitution of 1851, and are the result of amendments or of constitutional revisions. The tendency is toward greater strictness—there being an apparent rivalry in conservatism. The constitution of Oklahoma, the latest state to be admitted into the Union, bears out this statement. The very wording of the limitations in many constitutions from all parts

¹ Text as of *Webster's Works*, Vol. XII, pp. 211-214.

of the country is so uniform that a harmonious co-working of the commonwealths toward better conditions of state credit is manifest. There are a very few states, e.g. Massachusetts, New York, the Carolinas, Kentucky, and Kansas, which are more or less lax (when they have any restrictions at all), as to the creation of state debt; but the spirit of the time is best illustrated in Georgia, which, by the constitution of 1877 has prohibited the creation of any further funded debt, and limits to \$200,000 the floating indebtedness which may be outstanding against deficient revenue at any one time. Wisconsin's constitution of 1872 will furnish a still better model of utmost rigor in its restrictions.

414. In general the constitutions permit the legislatures to contract debt

1. to meet casual deficits in revenue,
2. to defray ordinary expenses not otherwise provided for,
3. to redeem existing funded indebtedness,
4. (sometimes) to pay interest on funded indebtedness,
5. to undertake public improvements,
6. to repel invasion and suppress insurrection.

The first three are within the immediate powers of the legislatures; often the last three are valid only after the referendum.

415. But on the other hand the constitutions generally forbid the legislatures

1. to incur floating indebtedness beyond certain limits,
2. to incur ordinary expenses beyond certain limits,
3. to incur further funded indebtedness, or at least indebtedness beyond a certain sum,
4. to incur indebtedness for "internal improvements,"
5. to assume the debts of any municipality, corporation or individual,
6. to use funds raised as above in behalf of war, insurrection, etc., or funds raised in the interests of amortization, for any other purpose.

In most states this is the tenor of the fundamental law. And it is most reassuring, especially in view of the fact that the entire West and most of the South adheres to its general terms. To be recommended for particular notice are those sections of each code forbidding the loan of the state's credit for corporate enterprise or for works of internal improvement.

416. To offset in slight degree this recent record of antipathy to debt-creation it must be said that Mississippi and one or two other

repudiating states interdict in their revised constitutions the payment of the old defaulted bonds.

417. Statutory Debt-Restrictions and Corollary Acts. So much for the constitutions. As for the statutes, though there is an intimate and significant relation between them and the state's attitude toward its debt, the details are too technical for this place. To read the relation aright requires assistance from the bond attorney. An illustration will suffice. We have noticed previously that several of the commonwealths, by the terms of their revised constitutions, permit themselves to be sued. To what extent the people or their present representatives abet this provision, and therefore to what extent they are acting in good faith respecting this particular amendment, may be learned in each case by consultation of the statutes supplementary to the constitution. When none is to be found it is assumed by the legal fraternity that the provision is practically annulled by the will of the people. Webster, in that letter from which we have already quoted, seems to be more correct in his diagnosis of the security of statutory law than he was of the people's good faith. He said: "If it" (the state) "could not or would not make provision for paying the bond, it is not probable that it could or would make provision for satisfying the judgment."

418. Not only is a state's attitude toward its debt to be determined from statutes relating to the debt-limitation, but also from those affecting the status of municipal obligations. In 1879 the legislature of Tennessee made a crude attempt to enable its municipalities to evade their debts by an act disincorporating certain municipalities and in place forming new taxing districts. The federal courts promptly decided against this childish effort to impair the obligation of contracts, and Tennessee's credit still suffers from it as every bond man well knows.

419. But statutes, good or bad, can be repealed and constitutions revised; statutory law can never rest for long at greater moral heights than the level of average integrity. Therefore the consensus of sober opinion looks away from law and toward history for its major judgments. Thus it is that New York, with only slight constitutional restrictions upon the making of its engagements and with a decided inclination toward internal improvement by use of the state's name, and Massachusetts, with absolutely no constitutional restrictions and the largest debt in the Union, lead the commonwealths in credit.

420. **Significance of Recent Legal Decisions.** Common law, however, is no such handy instrument of a people's immediate will. It does not easily lend itself to purposes of municipal or state roguery, although with adequate preparation one can at times read by it significant indications of the level of business integrity in a community. But as in statutory law the investor will do well not to interpret without legal help. It is not without its significance that the most disquieting recent decision by a State Supreme Court comes from North Carolina. By virtue of this decision, at variance, it seems to us, with any sense of equity, a certain bond house was compelled to take an issue of county obligations, for the discharge of which it appeared there was no possibility of levying sufficient taxes.¹ The court was divided in its opinion, and one of the dissenting justices deprecated the decision as having a deleterious effect upon credit, in these terms:

"I must confess, with all possible deference to my learned brethren, that I regard the conclusion at which they have arrived as a serious blow to the credit of the municipal corporations . . . of the state. I fear that, relying upon" (a previous Supreme Court decision) "many bonds have been issued under acts similar to the one before us. Their value must be seriously impaired by the decision now made, which, I think, practically overrules" (the previous decision) "The credit of the state and its municipalities was never so high as at this time. The uncertainty of the validity of our bonds is the only obstruction to their sale at higher figures, thus lowering the rate of interest. Next to character and capacity the most valuable asset which a people both individually and corporately can have is the integrity of their obligations. The first two elements of credit our people possess. It is the duty of the Legislature and the courts to guarantee the last."

There is no need to confirm the suspicions of the dissenting justice that North Carolina's attitude toward county obligations, expressed in such a decision as this, militates against the credit of the state and its corporate subdivisions.

421. Quite the opposite attitude, in Montana, on the part of the legislature, reassures the purchasers of her obligations. The antithesis to the preceding case is not perfect because it was not the court but the legislature which had the opportunity to prove a bulwark to the state's good faith. In 1906 the Supreme Courts of Montana and of the United States held invalid certain bonds issued by the State Board of Land Commissioners. Instead of hailing the fact as an opportunity to escape just obligations, Montana passed an

¹ Pitt County vs. MacDonald et al., 61 S. E. 643 (May, 1908).

act in the following year appropriating moneys for interest due till 1909, and providing for the recall of the bonds from time to time out of surplus revenues in the general fund.

422. Significance of Amount and Character of Present Funded Obligations. Reassurance as to the present attitude of the commonwealths toward their debts is to be had also by a general survey of the several amounts and of the purposes for which they were issued.

423. Five states have no bonds at all, of any sort, outstanding, except "overdue" bonds. When no debt is claimed for these states it means no debt within their power to pay. Funded debt, past due, represented by coupon bonds, the owners of which are unknown, and registered bonds, the owners of which cannot be found, is outstanding against almost every government. Of course upon the maturity of these bonds interest ceased and nothing but the principal and accrued semi-annual interest unpaid at maturity remains a charge. Sometimes bank deposit is made against possible future presentation of the bonds. In this class of states are Ohio, Illinois, Iowa, South Dakota, and Nebraska.

424. Ten other states have no "foreign debt," i.e. funded indebtedness in the hands of the public; but may have overdue bonds outstanding, and have "domestic debt," i.e. non-negotiable certificates of indebtedness held in their own sinking funds and other special funds, generally as perpetual loans with obligatory interest. This is also often called "irreducible debt," although the word "debt" is a misnomer. It is a technical and rather foolish bookkeeping charge in line with all sinking fund bookkeeping, and it generally balances its equivalent in assets.¹ To all intents and purposes these states are without debt, however large the accounts may be. They are New Jersey, Michigan, Wisconsin, Minnesota, Missouri, Kansas, Oregon, Washington, Nevada, and Kentucky.

425. A third class may be distinguished, of three states which have no legal debt except as above, but which have obligations to the public they will not recognize. They are Arkansas, Florida, and West Virginia.

426. With eighteen of the forty-six states of the Union practically free from bonded debt, and several others, e.g. Missouri, with only a small sum publicly held, we may well be congratulated on the change in financial policy that has taken place during the past

¹ Certificates of indebtedness are sometimes classed as bonds in statutes, and sometimes not.

twenty years. The great majority of these states with substantial indebtedness to the public, we shall presently take occasion to say, have quick assets in the form of treasury money and the like, which make their net indebtedness trivial.

SECURITY: TANGIBLE ASSETS

427. It has been made sufficiently clear that the security behind the bonds of a state rests mainly on its credit, and since the state is a quasi-sovereign, that this credit is represented mainly by the state's will toward the debts of its own creating, and that this will is to be judged in the light of the history of the state debt and of the state's present attitude, however determined, toward its debt.

These factors which make for state credit are intangible factors, or to revert to the metaphor of the preceding paragraphs,—in the inventory of a state's wealth they are not measured in dollars and cents: they are intangible assets.

428. **The Tax Power.** And yet though not measurable, and exceedingly subtle, the intangible assets of the state, on evaluation, are found very sensitive to the condition of the tangible assets, or material wealth. In tracing the history of state debts we noticed that the two chief outbreaks of default and repudiation closely attended two periods of severe business depression. The direct connection between the two kinds of assets is the tax power. There has been no case of default on state bonds, *whether valid or invalid*, when the resources of the state were sufficient to pay without hardship the annual state levy.

429. To him who seeks the material sources of a state's credit, the tax power is an immediate consideration. He should learn in the first place whether the state now levies a general tax. If it does without any tax, well and good; in an emergency this might prove a fresh resource. Vermont, Pennsylvania, Delaware, and Wisconsin have this distinction,—all four states with small or no funded liabilities. In lieu of a general tax, revenue is dependent upon interest from treasury assets, and from license taxes and special taxes on corporate capital stock, stock transfer, corporate loans, collateral inheritances, charters, etc., etc. New York State, also, has no direct tax.

430. Secondly, he should note the tax rate and the comparative degree of burden it imposes. In comparing the tax burdens of

two states he should see that he has in hand the real, rather than the nominal tax of both as a basis. Sometimes, as in Massachusetts, the nominal state tax is the average of the municipal tax rates, and the tax for the immense contingent debt is annually levied directly upon the cities and towns benefited by it. Sometimes the tax is somewhat split up, and therefore deceptive. Indiana has the usual General Fund tax, but special taxes for benevolent institutions, public schools, sinking funds, and educational institutions. Vermont has no general state tax, but in the capacity of agent relieves the districts of direct taxation by raising special levies for such district purposes as school and highway-building and redistributes the proceeds to the towns, etc., by process of equalization. Connecticut in like manner remits the proceeds of its corporation taxes.

431. Thirdly, the investigator should particularly note that in one or two instances the commonwealths have imposed a constitutional limit to the rate of the state tax levy.¹ Georgia limits the tax to \$5.00 a thousand; Alabama to \$6.50 a thousand. This is not only placing the restriction where it does not belong, but, if the custom should spread, might come to have an important bearing on validity. If the tax limit in a given case had been nearly reached, such a provision might make impossible the levy of a remedial tax in time of emergency, such as arose in Nebraska in 1877. That year a pest of grasshoppers destroyed vegetation, and by means of a special levy the state was enabled to borrow funds to distribute seed grain to the farmers.

432. Lastly and most important, some well-grounded opinion should be arrived at on the following questions: What is the ratio of the present to the possible or practicable state tax? What is the ratio of the present state tax to the possible aggregate of municipal taxes? What is the ratio of the present state tax to the present aggregate of municipal taxes? A commonwealth may be without real public bonded debt and yet be less prepared to support one because of high internal tax rates, than another commonwealth with many and large funded obligations, which has, however, a light load of internal debts.

433. **Taxable Wealth and Assessed Valuation.** With the exception of states having a constitutional tax-limitation, and even possibly then,—ultimately, the resources of the tax power depend on the ratio of the actual total state tax to the taxable wealth. This

¹ Not to be confused with the more common municipal tax limitation.

ratio is not always the same thing as the tax rate; it depends on whether the taxable wealth and assessed valuation of a certain state are synonymous terms. In other words it depends on whether, as in Massachusetts, the state assesses all property within its borders at full valuation. Since the taxable wealth of the state is known to the public at large only in terms of assessed valuation, and since assessed valuation is arrived at in various ways by the different states, and by various ways within a single state, we are confronted not by an insular but a comparative study, with statistical materials requiring careful analysis. The analysis, however, is well worth while, for assessed valuation represents the chief of the tangible assets.

434. Equalized Valuation. It is disconcerting to find the number and variety of means by which the figures for assessed valuation are attained. If it is the year of a state census, the results are more likely to be dependable, especially in the West, because obtained under state supervision and by more uniform methods. If not such a year the aggregate may be compiled wholly from inventories of cities and towns, or else from county totals, which in turn, to save time and labor, have been constructed by changing to scale the figures of the preceding assessment. But since in those states which do not uniformly require assessment at full value the differences in tax rate require adjustment by a board of equalization, the whole subject has its full share of perplexities.

435. In not a few of the states there is a general assessment of real estate only once in a period of several years (Michigan every five years, Illinois every four years), although personal property may be listed every year. In the intervening annual returns, therefore, the valuation of real estate (the larger part of the whole) is arbitrary, and detracts, like the process of equalization, from the accuracy of estimates and from the value of comparisons. Even in states that are presumed to revalue property annually, there is a general suspicion among officials that a thorough-going reassessment is occasional rather than periodic.

436. Relation of Assessed Valuation to Real Valuation. To be welcomed therefore as a tendency toward betterment in statistical methods is the recent movement to make assessed valuation, or at least appraised valuation, when the two differ as in Illinois, the same as real valuation. Massachusetts, Connecticut, and Illinois took this step years ago; West Virginia in 1905, and New Jersey in 1906. Any tendency toward uniformity is to be welcomed as

removing obstacles to comparative studies. And yet in this case the reform brings its own troubles. On comparing successive valuations in a state over a period of years to determine the rate of its growth or retrogression, the change in basis of appraisal is likely to be overlooked. In Connecticut for instance:—on the face of things Connecticut shows a remarkable growth in wealth during the past twenty years, for such a settled state, having almost doubled its assessed valuation. But the cold reality is that Connecticut's basis of appraisal twenty years ago was not much over 50 per cent; yet to-day, as stated, it is at actual value.¹

437. Comparison of Valuations. With these precautions in mind much light on a state's financial condition may be gained by comparison of its present with its past valuations, and of its present with the present valuations of other states. Surely no one has any but himself to blame, who in 1870 or thereafter bought the loans of Louisiana, which were subsequently repudiated, when he had before him the fact that the debt had doubled in the preceding decade and the assessed valuation of all property had declined one-third. And the same course of reasoning would have applied to the loans of any other repudiating state.

438. The Components of Assessed Valuation. Assuming now that the investigator appreciates the statistical difficulties of the appraisal and comparison of assets, he should analyze the assets themselves, for they vary greatly in degree of resource should need arise of sudden increase in state loans.

The large division of assessed valuation into real and personal property goes without saying. Many states separately itemize in their general reports the tax resources contained in bank and trust company stocks and deposits, in the capitalization of railroad, telegraph, telephone, and insurance companies, and generally in the chartering and capitalization of corporations. These resources are entirely at the command of the legislatures in the same sense that real property is. Here again we find no uniformity of use in regard to the tax power. In some states objects are taxed that in others are not; and the rates on the same objects vary. Massachusetts taxes savings bank deposits one-half of one per cent. Vermont taxes savings bank and trust company deposits seven-tenths of one per cent. Vermont taxes the gross earnings of her railroads two and one-half per cent. Other states tax in preference rail-

¹ In Connecticut a minor change affecting the returns of valuation has been an alteration in the method of posting the grand lists.

road capitalization. Missouri taxes machinery, tools, and merchandise in one appraisal and the public utilities in another; but neither tax duplicate is carried over to the statement of general assessed valuation. These variations in bookkeeping all effect results and should be reckoned with.

439. Other Items of Material Wealth. There is other material wealth which, being the property of the state, as such,—proprietary assets,—is not usually a resource of the tax power, but may prove on examination to be of first importance as immediately balancing state liabilities. Some states have revenue-producing realty; South Carolina has beds of phosphate deposit which formerly were of great help in meeting the annual budget. Treasury assets pure and simple are very generally neglected in comparisons of state resources. Wyoming has unattached cash and securities on hand equal to five times her bonded debt; Delaware for years has had free assets greatly in excess of her liabilities, Nevada, free assets equal to 125 per cent. of her (nominal) bonded debt. Oklahoma has no bonded debt, but the cash in all funds is about two-thirds the amount of her warrants outstanding. New York, with a bonded debt of \$57,000,000, has a sinking fund of \$24,000,000. Even Massachusetts, with its enormous debt (direct and contingent) of well over \$100,000,000, has sinking funds equal to one-quarter of the amount. New Jersey, with no debt publicly held, has cash in her state fund of over four and one-half millions, and railroad stock of considerable value. Some states in the West and South have sequestrated special funds for charitable and educational purposes largely in excess, both as to principal and interest, of the nominal state debt. It is because of this fact that we are justified in calling free from debt those states mentioned in Class II above. All Nevada's bonds are so held and in addition a part of her fiduciaries are invested in about one million and a quarter of Massachusetts state bonds and United States Governments. The situation is somewhat analogous in California's "Sea Wall" and "Depot" loans. These are to be paid from the collections of the San Francisco Harbor Commission.

440. Of course the value of all revenue-producing loans and the justification for discarding them in arriving at a state's real net debt, depends upon the character of the enterprise they assist and the assured permanency of its income. The old canal, railroad aid, and bank bonds, of ill repute, were at one time technically in this revenue-producing class. Perhaps the line of cleavage between

issues which may and which may not be discarded lies in the purpose of issue. Revenue-producing corporate aid bonds, should, from the lessons of the past, not be booked by the bond-buyer as anything but a pure liability, and revenue-producing loans issued for purposes of public improvement, like the California "Sea Wall" bonds, should be omitted as at least self-subsisting.

441. Population. An indirect asset, if it may so be called, that should not be neglected, is population. The poll tax of itself is no inconsiderable resource. As an index of growth or decline in material wealth statistics of population are serviceable. In Nevada, for instance, the decline in population suggests the subsidence of silver mining, its chief industry, and in Washington the growth of population—the most remarkable in the Union during the past decade—is in keeping with the marvelous development of this state during the period. Needless to say municipalities there sell their bonds with a lower interest rate and at a higher figure than ten years ago.

442. In comparisons of population, temporal and geographical, certain extraneous and occasional influences should be taken into account, viz., the enfranchisement of the negro after the War, and from the census of 1900 on, the inclusion of the Indian population on the Reservations.

443. Obviously the character of the population is of first importance, and closely second to it the character of present or expected accretions from birth and immigration. Those Northwestern states which are being settled by the sober, virile races of Northern Europe will in all probability make impossible a repetition of Minnesota's repudiation. In the South it is a question to what extent the growth in population of the blacks is a menace to credit. Their rate of increase per cent. is not so great in a majority of the Southern states as the rate of increase among the white population.

444. Bank Statements. Another index of growth in prosperity is the bank statement. It is not unusual to see on a bond circular a comparative statement of bank clearings. Apropos again of the South, and its rapidly improving conditions, in 1880 the resources of the Southern National banks were \$171,464,000. In 1900 they had grown to \$516,798,000, and in 1909 to \$1,177,000,000, or over 100 per cent. In 1900 the deposits in state, savings, and private banks and trust companies were \$254,439,000; in 1910 they were \$624,752,000. The commercial agencies say that statements of bank clearings in the newer communities are sometimes unreliable and must therefore be viewed with caution.

445. Offsets of Liabilities. Just as there is reason to offset against gross bonded indebtedness such quickly convertible treasury assets and stable income-producing properties as a state may have, so again, it should be understood that these assets have their like offsets,—that state bonded indebtedness is by no means the only or chief liability of the people of the state, and therefore of the states, since the courts recognize as the ultimate obligor, not political or corporate bodies, but the very people themselves. The chief encroachment on state tax resources is the existence of municipal indebtedness. This fact is not usually given due weight. It ought seriously to militate against the price of Kansas loans should any ever be offered the public. Put in other words, the security behind state bonds is partly dependent on limitations as to municipal indebtedness. Only the surplus revenues of business activity are taxable, and the interest on and redemption of municipal loans eat into this directly. It is a well-established principle of law, relating to civil governments and corporations as well as to individuals, that a debtor's right to life and liberty is prior to a creditor's claim. No court would prejudice the solvency of a state (when sued) or of its civil divisions, in the interest of any bondholder. And so it is for the bond purchaser to see that the tax burden of the lesser civil divisions is not perilous to the interests of the state debt. The principles here outlined apply in the same way with equal force to a state's contingent debt. It is to be doubted whether any state has repudiated its bonds without, as part or main cause, the failure of revenues for bonds of its guaranteeing,—in other words, for its contingent debt. Massachusetts offers at present the best field for study of this class of liability.

446. Warrants and other floating indebtedness should also be considered. The list of states without bonded debt, given previously, would have been misleading were bonded and floating debt virtually the same. Both Iowa and Nebraska, for example, have large interest-bearing debts but no bonds, and Oklahoma's small debt is all in warrants. There is a moral distinction of importance between the two kinds of obligations. A floating debt may be carried along from year to year, indefinitely, but the very fact that it has not been funded indicates (in lack of constitutional provisions) an unwillingness to create debt of long standing and an intention to retire it when revenues permit. However, as a pure liability, floating debt should be looked to as seriously as any other. Colorado at one time had such a debt in excess of constitutional limits.

SECURITY AS VESTED IN THE BOND ISSUE

447. We have considered up to this point the security for state bonds vested in a state's intangible and tangible assets,—that is, in its "sentimental" credit and in its tax resource as they are dependent on each other. There is a word to be said in closing as to the security vested in the issue itself.

448. **Amortization: Sinking Fund and Serial Repayment.** First as to sinking funds. This subject in its large aspects has been thoroughly covered already. It is necessary here only to repeat that the sinking fund principle, whether applied to government, state, municipal, or corporation issues, is wasteful, and renders a fund liable to depletion by misappropriation, embezzlement, and other fraud, and to depreciation in its investments. Of what use to Virginia was that part of her sinking funds which held the Riddleberger bonds, when the state paid interest on those in the hands of the public, but, for years, not on those in the sinking funds? Mississippi illustrates best the vicissitudes of this method of amortization. In 1830 a sinking fund of \$250,000 was started for the Planters' Bank bonds from the premium secured at their sale.¹ By 1839, when the bank failed, this sum had increased to about \$800,000, but *within one year*, by mismanagement and depreciation in its investments, had dwindled to \$525,765, and by 1848 to about \$100,000! By the constitution of Pennsylvania her sinking funds may be diverted, at the will of the legislature, from the extinguishment of the public debt, for use in war, invasion, or insurrection.

449. A railroad president has said: "The best way to sink a debt is to pay it; the surest sinking fund is *payment*."² A few of the younger states have set a much needed example to the older by adopting the serial method of payment, or at least by making redemption possible before regular maturity. All Idaho bonds with one exception are subject to call ten years before regular maturity, and because that one exception is not now redeemable the state is obliged to pay one per cent. more interest on the face of the loan than on any of the others. By the constitution of Wisconsin a law creating a debt "shall provide for levying an annual tax sufficient to pay the annual interest of such debt and the principal within five years from the passage of such law . . . and such appropria-

¹ "Banking and Repudiation in Mississippi," *Bankers' Magazine*, 1863.

² *The Sinking Fund*, G. M. Browne, 2d ed., p. 10.

tion shall not be repealed, nor the taxes postponed until the principal and interest . . . shall have been wholly paid." The wording of Minnesota's constitution is practically the same, except that ten years, not five, is the period set.

450. Maine, however, has adopted the best plan of all: straight serial repayment. When Maine refunded her old debt in 1889 she caused her new loans to mature in annual instalments. West Virginia, by the constitution of 1872, requires the serial method of retiring any loan she may put forth. Massachusetts, with the most need of all, because of the immensity of her debt, has done next to nothing toward improving her condition by sound fiscal methods, and, in respect to the contingent debt, which is the larger part of her obligations, has until very recently,¹ even withheld from the forty and more cities and towns which must pay it, the privilege of discharging it by the serial method. It is a pleasure to record that through the public spirit of a gentleman who has saved his own town of Brookline nearly a million dollars in interest during the past twenty years by agitation and exposition of the serial method, and incidentally, has kindly assisted in the preparation of this book, the cities and towns in the Metropolitan District of Massachusetts are privileged to avail themselves hereafter of the serial method of financing the obligations of the Metropolitan District. Had the three principal loans of the District (running forty years) been issued in serial form, even at one-half per cent. higher rate than under the sinking fund form, the saving in interest account would have been \$26,000,000, and the saving in actual cost to taxpayers about \$8,360,000 on a $3\frac{1}{2}$ per cent. basis.²

451. Validity. But if there is any one thing an issue ought to bear on its face, metaphorically, and literally as far as possible in the recital of the bond, it is validity. It has been said previously that no state has repudiated its bonds, whether valid or invalid, when the tax-burden was not a hardship; but conversely, seldom (Mississippi in 1852 and one or two other instances excepted) has a state with an unbearable tax-burden repudiated its obligations without some show of invalidity. More than one volume would be needed to develop adequately this topic of validity. Bond law, however, has progressed to such a stage that opportunities for doubt seldom arise in connection with state issues. But the

¹ Changed by the Acts of 1905, chapter 169.

² Cf. *The Metropolitan Debts of Boston and Vicinity*, Alfred D. Chandler, Brookline.

method of authorization and flotation, and the purpose of issue have been fruitful sources of trouble in the past. Kansas at one time authorized a loan in aid of an oil refinery. If memory serves, the issue was declared illegal before being sold and no harm was done.

452. An anecdote will illustrate the attitude of caution respecting purpose of issue assumed by the well informed, as the result of past defaults. A lawyer friend and client of the writer, but not a bond attorney, offered to buy some State of Massachusetts 3½s issued for the purpose of building a court house. Upon finding these all sold he was with difficulty persuaded to take State of Massachusetts 3½s of the same date of issue and maturity, at the same price, and authorized by the same law,—in fact in every respect absolutely the same as the Court House bonds except that they were issued for the purpose of highway improvement. The incident carried with it a lesson as well as some amusement, and was the immediate cause of the care and fullness of detail which have been given these chapters.

453. Texas has the distinction of guaranteeing the legality of her county and municipal issues. All loans of date subsequent to 1893 must bear the certificate of the Attorney General that they are lawful obligations; and when so certificated they may not be challenged for validity. It is our recollection that one or two states do likewise for their own *state* loans. It is at any rate a plan worthy of advertisement and imitation, and therefore mentioned in this place.

454. Although there is little danger in purchasing, through well-equipped bond houses of repute, recent issues of state bonds, there are so many plausible-looking certificates afloat, souvenirs of the Reconstruction Period, that one should carefully scrutinize old paper coming into his possession. In 1884 the face value of all bonds, state and territorial, upon which interest was being paid, aggregated \$190,000,000; upon which interest was being defaulted, something over \$200,000,000. As a majority of all state bonds afloat at that time were in default, and since a majority of the old defaulted bonds are unrecognized and undoubtedly forever void,—repudiated by constitutional enactment, or having expired by limitation of the refunding compromise period, very few of these old loans are worth owning at any price.

455. There are a few other certificates that it is possible to buy under misapprehension. These may be called quasi-state bonds.

There is a recent Minnesota State University two year loan, for instance, issued by the Regents of the State University, "the payment of which is pledged by a direct tax on all the taxable property of the state," under authority of an act of legislature. It would be hard to catalogue these bonds. Since their security is the tax power they are not corporation bonds, and yet, since the corporation of the Regents promises to pay, and they are not issued by the state, nor secured by pledge of "the faith and credit of the state," the state is not the direct or primary obligor, but technically appears in the position of guarantor, and pledges a specific tax. The bonds therefore are not state bonds. Montana has similar educational loans, for the payment of interest and principal of which the state is not liable, and yet for the payment of which it pledges the proceeds of the sales, rentals, and privileges of certain public lands. These bonds are only a little if any less secure than the direct state loans, and the permanent University Bond Fund, created to amortize the debt, has risen to proportions almost commensurate with the debt itself.

456. Investment Value: Price and Income Yield. With all that has gone before it is hard to reach any other conclusion than that, *as a class*, state bonds are not so desirable for investment as the better grade obligations of municipalities, for a considerably higher price must always be paid to secure state bonds of equal investment worth.¹ At a time² when 50-year bonds of New York City were to be had on a 3.90 per cent. basis of return, and short term bonds of Baltimore on a 3.95 basis, it is difficult to see the advantage of buying 50-year bonds of New York State and short term Maryland bonds on a 3 and 3.10 basis respectively. But more in particular, why should one buy Georgia bonds on a 3.50 per cent., Alabama bonds on a 3.75 per cent., and Tennessee bonds on a 4 per cent. basis, to say nothing of Virginia and the Carolinas, at a time when there are very few cities in the country with credit so strong, and inducements like exemption from tax and long duration of loan so enticing, as to float a loan upon a 3.50 per cent. basis?

457. Market Factors. We have cited Tennessee. Tennessee Settlement 3s, suggesting repudiation and compromise in the very title, were given in 1883, at the rate of 50 cents on the dollar, for 6s which had been repudiated. And such old 6s as were not re-

¹ The principle called "distribution of risk" favors state, as compared with municipal, bonds.

² September, 1908.

funded before January 1, 1907, were by that fact made void. Yet these Settlement 3s of 1913 sell at present on a 4 per cent. basis. In 1879 the old 6s sold at 33! Not all, but some part of that difference, is caused by the artificial demand for state bonds of which we spoke earlier in the chapter. A large part of the demand comes from insurance companies. The Insurance Commissioner of Tennessee writes that the law requires insurance companies doing business in that state to deposit United States bonds, *bonds of Tennessee or some other state in the Union*, or real estate mortgages. It is well known that quite an amount of Tennessee state bonds is so held by insurance companies for business in that state.

458. On the face of it this compulsory demand seems to arise naturally enough. The vogue of similar insurance laws is quite general throughout the country, in Cuba, and elsewhere. But the origin and perhaps the prevalence of the laws is due to a deliberate effort to create this compulsory and artificial demand. At least that was the contemporary explanation in 1869 when the South Carolina legislature, "in order to create a more active demand for the state bonds, passed a law binding all insurance companies doing business in the state to deposit state bonds to the amount of \$50,000 in the hands of the Treasurer as a guarantee of solvency."¹ If this was the purpose it proved successful, and the state 6s, which before and after sold in the twenties and thirties, rose for a time as high as 87.

459. In like manner many sorts of trust funds, both public and private, by choice or imitation, create a demand for state bonds. Congress in behalf of the National Government, invests important trust funds in certificates of state stocks. Nevada, we saw, has invested such portion of her special funds as has not gone into her own state loans, in State of Massachusetts bonds, principally, and she has only followed precedent. Savings banks and other fiduciary institutions are almost always buying in this restricted market. But the most insatiable demand of all is from sinking funds, by which states, in purblind folly, becoming debtors to themselves, hope to raise up the security for their bonds by its own bootstraps. State sinking funds almost always pay more dearly for the bonds of their own state than the market warrants. When, shortly after the "silent panic" of March, 1907, New York State went into the market with \$5,000,000 50-year 3s it was, of course, in the knowledge

¹ *The Bonds of the Southern States*, New York, 1870.

that the great bulk of the bonds would be bought by the State Comptroller. Otherwise the issue could not have been floated, since outside bids were received for only \$300,000. Buyers for trusts or for personal account who mistake this artificially created *dearness* for *security*, and who meet the price, are not making the most of their opportunities.

460. If the price for state bonds is prejudiced by an artificial demand it is also sustained at present by a limited supply,—by the widespread reluctance of the commonwealths to incur debt beyond the needs of the year. This reluctance is finding expression in the entire abstinence of the eighteen states from funded “foreign” debt, in the gradual amortization of the debts of other states, and in the growing sentiment in favor of constitutional debt limitations and inhibitions. All in all, therefore, it is safe to say that, though one has to pay dearly for state loans, the chances for severe loss through decline in price in the near future are much less than in the case of government bonds. This of course is but the market aspect of the increasing security, both sentimental and material, behind the loans of the commonwealths.

461. **Bond Characteristics.** There are no accidental characteristics of these bonds as a class, worthy of special mention. Considering the comparative paucity of the supply a great variety of requirements as to form, denomination, interest rate, duration, etc., can be met. Registered, coupon, and interchangeable bonds are all to be had, and in every usual denomination from \$50 to \$5,000 and up. Many warrants and other scrip of only a few months’ duration are always outstanding. Many of the older loans mature conveniently in the next few years; and for long bonds, New York Canal Improvement 3s have 50 years, and the Virginia “Centuries” still 82 years to run, and there are not a few others. A large and increasing proportion of state bonds is exempt from taxation, and this fact has hitherto proved a strong inducement to trust fund purchase. However, the extension of laws exempting municipals from taxation will in part remove this attraction from state bonds.

462. **Conclusion.** If a somewhat extended treatment has been accorded state bonds,—perhaps more than the subject at this day seems to warrant, be it said that many of the principles can be conveniently carried over to the other classes of tax-secured bonds which we shall now consider. But more to the point: If the men of Lombard and Wall Streets, and countless other bond buyers,

had taken the same pains in 1870 or thereafter to acquaint themselves with the components of state credit, and of the errors of the legislatures and investing public in the preceding generation, that we have taken for both generations and for our own, fewer loans would have been floated and less state paper would now repose in ancient pigeonholes.

CHAPTER XV.

COUNTY BONDS

463. The Municipal Division of Tax-Secured Bonds. Upon entering the subject of County Bonds we have done with the governmental division of tax-secured issues, or Civil Loans, and have taken up the municipal division. The line of separation is very distinct. Government securities, whether federal or state, rest immediately upon the good faith of the obligor. Creditors of states, other than states themselves, have almost no redress at law, and absolutely none without the virtual consent of the defendant state. This republican country did not inherit in its common law the immemorial principle of monarchy: "The King can do no wrong;" but in overriding by Constitutional amendment the ruling of the United States Supreme Court that a state *could* be sued by a citizen of another state, it surrendered this portion of its democratic birthright for what, in the light of history, many would call the pottage of state sovereignty. History has not dealt so ironically with our municipalities. Although legislatures have sometimes made the attempt, no state has openly permitted, or can permit, its municipalities to evade any part of their legal debt. To do so would be to infringe upon the Federal Constitution which prohibits the impairment of the obligation of contracts. Therefore there is no theoretical relief from unwelcome debt for the political subdivisions. An individual or a private corporation may, in certain circumstances, incur debt, and then, before the law, be released from the obligation. But not so a municipal corporation. There is no bankruptcy court nor bankruptcy law for municipal¹ debtors.

464. Since, now, all municipalities, in contradistinction to sovereign governments, are amenable to justice and equity vested in the law, and the law, in turn, is created and exercised by higher authority than the municipality, or even than the state, a somewhat

¹ The several states and their legislatures are somewhat at variance upon the use of the word *municipal* and its derivatives; and in bond parlance the term is none too explicit. In this book it has been used for the most part in its broadest sense, as pertaining to all the civil divisions of a state.

different set of conditions affect the security for municipal obligations from that affecting government obligations; or at least, if the various conditions are the same, their relative influence and importance are greatly altered.

465. **Characteristics of the Municipal Division.** In Government Bonds, federal or state, we found, good faith was the one great essential. Perhaps in only two instances were state loans made in good faith which could not be repaid because of actual inability; and he would be a pessimist indeed who believed the material resources of any state could be so depleted in the future as to compel default on anything like present acknowledged indebtedness. In Municipal Bonds, however, good faith is not theoretically of that supreme importance, for there is remedy at law which usually proves adequate. The cases are innumerable in which state courts, or on failure of these, federal courts, have come to the relief of bondholders when municipalities have attempted to cheat. In Municipal Bonds one must *first* satisfy himself of the financial competency of the issuing body, that the law may not withhold relief for want of wealth to tax, for the financial future of all municipalities, unlike that of states, is by no means reasonably assured. And secondly, one must seek security in the issue itself, must make certain of a bond's validity, that in want of good faith he may have the law at his service. Lastly, he may weigh the evidences of good faith, by the laws and record of the municipality, and of the state in which it is situated, and also by the attitude of the courts of jurisdiction. In these ways he may ascertain the degree of danger from dishonesty. This, then, is the order of investigation for municipal issues:—financial competency, validity, and good faith,—whereas in State Bonds it is good faith, competency, and validity. This difference of standing in law, and diminished importance of good faith as compared with financial competency and validity, draw together for study in common the obligations of the lesser political divisions.

466. Therefore it is that the bonds of counties, parishes, townships, cities, towns, villages, boroughs, districts, precincts, etc., etc., are logically grouped together and often entitled municipals, whether the entity of the issuing authority arises from incorporation, either by general or special act of legislature, or by act of city council. Further subdivision of Tax Bonds, or Civil Loans, is quite arbitrary, and merely a matter of convenience. It is usually based on the political nature of the issuing body, for the character

and purpose of the flotation are largely determined by the character of the municipality and the purpose for which it was created. Since the city (or town) is the most important of these political units, the bonds of cities and towns are called *Municipals Proper*, and it is under the chapter-head of *City and Town Bonds* that the principles that govern the municipal group will receive their fullest treatment. Accordingly the other members of the group will be discussed only along their lines of divergence from the City and Town type.

487. The Economic Function of the County. The largest political subdivision of the state is usually the county.¹ The importance of the county as a civil division varies considerably in the several states. In Connecticut, where the town is the civil unit, from which are made the grand lists for state as well as for municipal tax, one seldom hears of county bonds, for the part of the county in the state's political organization is not important. Connecticut is one of the original states,—as a colony one of the earliest settled; its population is comparatively dense; its ten cities and many towns are well scattered, and properly act as administrative centers. In Kansas, and in other states of the high plains region, on the other hand, the county usually seems to be the major civil unit, and county loans appear to exceed for the most part, both in number and in value, the loans of the included cities and towns. In these states of enormous area and sparse population the interests of a large part of the people are agrarian interests; legislation and expenditure which have to do with the raising of cattle and crops and their transportation by road and rail to market, are of utmost moment. Counties of this sort have therefore obligated themselves for the construction of turnpikes and bridges, and above all, for railroads; and in common with counties everywhere, for those general instruments of county administration; court house, jail, and poor farm.

488. The Range of Quality in County Loans. As one travels it is a journey from Kansas to Connecticut: representative in some minds of the former distance between Kansas and Connecticut municipal credit. Between the two there is a wide range of quality in civil loans; and the range in county bonds is as great as that in any other kind, although the legitimate purposes of issue are few. There are counties that are merely bad lands, creations of the surveyor; counties rich in mineral wealth; counties without

¹ In Louisiana the county-equivalent is usually called the "parish."

railroad transportation; inland counties, worthless without drainage or irrigation; counties embracing a dozen cities and towns; metropolitan counties coextensive with a great city. For the loans of all of these we must organize a criticism sufficiently catholic to appreciate justly each and every kind.

MATERIAL ASSETS

469. The County Statement. Our first business in County Bonds, as in all Municipal issues, is with the financial competency of the municipality. To that end a circular, offering County Bonds, will have upon it a statistical statement, furnishing us, probably, with the county's Real and Assessed Valuation, Gross (or Total), and Net Debt, Population, and perhaps Tax Rate. These facts are very useful in determining the value of the security, but not one bond buyer in a multitude is able to interpret them. Let us take them up in their logical order. First the tax.

470. The Tax Power and Its Limitation. The immediate security for all Civil Loans is the tax-power; but although the tax-power is directly dependent on the various assets, it may not be possible to exercise it to its full capacity because of artificial restrictions. We have deprecated these restrictions, in the preceding pages, for their artificiality; maintaining that restriction should be put not upon the very organ by which the amortization of debt is accomplished, but rather upon the debt itself; and the objection holds for county, as well as state tax-limitations. By her constitution Alabama in this way restricts the county tax for all purposes to $\frac{1}{2}$ of 1 per cent. of the assessed valuation, or \$5.00 a thousand; and Kentucky likewise. Kentucky very naturally permits her cities and towns greater leeway. They may tax themselves from \$7.50 to \$15.00 a thousand of their assessed valuation, according to population. Alabama restricts all municipalities and Arkansas her counties, to \$5.00. Arkansas does not restrict her other municipalities. Oklahoma restricts her counties to \$8.00 and other municipalities more or less according to their importance. Apart from any legal complications which this strange sort of limitation may arouse, it will be hard to convince the skeptical layman that if calamity should overtake county or town, and the tax-burden become harassing, the assessors might not yield to the temptation to lower the assessed valuation, and thereby cut into the annual tax and prevent the satisfaction of municipal contracts; for it must not be forgotten

that the current expenses of the municipality have the right of way over the discharge of municipal obligations. This base resort of untrustworthy municipalities is made impossible by the constitutions of California, Georgia, Idaho, Illinois, Iowa, Kentucky, Michigan, Missouri, New Hampshire, North Dakota, Oklahoma, Pennsylvania, South Dakota, Texas, and Wisconsin. In Illinois the provision reads as follows: "Any county, city, school district, or other municipal corporation incurring any indebtedness as aforesaid, shall, before or at the time of doing so, provide for the collection of a direct annual tax sufficient to pay the interest on such debt as it falls due, and also to pay and discharge the principal thereof within twenty years from the time of contracting same."

471. Although constitutional limitation of the tax rate for counties is rare, statutory limitation is by no means uncommon. West Virginia limits her counties to 6-10 of 1 per cent.,¹ or \$6.00 a thousand; and New Jersey, on a scale down to an ultimate \$5.00 a thousand. If the statute limits the tax rate in a general municipal taxing act, i.e. if, in the limited tax rate, are included the taxes for all public purposes (and this is usually the case), it may prove dangerous, for current expenses are or can be made very elastic, and an expansion of them to defraud would be hard to prove at law. In times past (e.g. in Missouri), taxes raised in virtue of a special bond-enabling act have come into contact with the general statutory limitation of tax rate, and the special bond-tax has been required to come within the limits of the tax rate for all municipal purposes. But the Supreme Court of Missouri has recently relinquished this construction to the benefit of all municipal bondholders.

472. **The Tax Rate.** To attempt to draw conclusions from the tax rate of a county is well-nigh hopeless without the possession of facts never found on a bond circular. The tax rate of Hartford County, Connecticut, is 25 cents per \$1,000, and of Adams County Ohio, \$17.35. Surely the burden borne by Adams County property-holders is not seventy times as great! Such absurd discrepancies are seldom found in city and town statements. The cause must lie in the nature of the civil division. Counties and districts of all sorts will be found to make returns like these, utterly at variance with any principle of uniformity in administration.

473. To a large extent the lower tax may be said to obtain in

¹ This statutory limitation is more stringent than that of the Constitution of 1872, which set the maximum county tax rate at 95-100 of 1 per cent., or \$9.50 a thousand.

counties with the higher valuation. Concentration of wealth economizes the expense of wealth's maintenance. Yet little satisfaction will be got from the principle in this form. Perhaps the only form of the principle worth application to county tax rates is this: "Municipal Counties," i.e. counties containing one or more cities, can maintain a tax rate justifiably lower than "Rural Counties," since in municipal counties the city or cities, by municipal tax, may carry the burden of public improvements. Therefore, although the rural Adams County, Ohio, has a tax rate of \$17.35, Summit County, Ohio, has a tax of only \$2.35, because Akron, the county seat, comes to its relief with a valuation of over \$25,000,000 to tax at the rate of \$32 per thousand. Occasionally one finds a city like Lynchburg, Virginia, which does not pay county taxes. In such a case the rate for the county will be higher than it would otherwise be, and to all intents the county could be classified as a rural county.

474. Under this condition too, the assessed valuation and all other components of the county statement should be presented minus the non-participating city's share. What has just been said applies only in part to the municipal county of Suffolk, Massachusetts, which includes Boston, Chelsea, Revere, and Winthrop. By a contract between these cities and towns, dating back to 1822 (when Winthrop and Revere were a part of Chelsea), only Boston is liable to taxation for any county purposes until the legislature shall otherwise order; and in return, Boston has all interest in and jurisdiction over the real and personal estate of the county. All statistical considerations for these municipalities should be governed accordingly.

It is not always evident what is included in the tax rates as presented by county officials. One should make certain whether the state tax has been deducted and the special taxes for schools or institutions, if there are any such. When the statement is worded "Total Tax" these generally are included. On the other hand, if the county is coextensive with, or overlapping any other civil division, such as a levee district, one should make sure, in computing the annual burden, that the divisional taxes are included, for the same property must bear the two or more imposts.

475. **Assessed Valuation.** In presenting the assessed valuation the bond circular is not liable to mislead, seriously, in its statement. This valuation will be the total of the assessed valuations of the constituent civil divisions, *including cities, etc.*, irrespective

of the method of appraisal. An exception should be taken when a civil division, like Lynchburg mentioned above, does not bear its share of the county tax. Any unusual situation like this at Lynchburg is to be avoided, because of the likelihood that the principles arising may not have received adjudication in the courts. No effort is made, as a rule, to indicate in the county statement whether the ratio of assessed valuation to real valuation is approximately the same for the county as the average ratio of the included towns, etc., for it must be understood that the ratios often differ, and for perfect results in comparison need adjustment such as is given by a board of equalization. In considering assessed valuation, as well as tax rate, debt, or population, we should constantly keep in view the character of the county:—whether it is “municipal” or “rural,” for the amount of the assessed valuation is not the only significant feature, but the *ratio* it bears to the *real* net debt.

476. Other Resources: Secondary Income. Counties, and “taxing districts” such as we treat in Chapter XIX, are not so favorably situated as states and cities, in regard to secondary income. All civil divisions are on the same plane of possibility respecting revenue from sinking funds, but the nature of counties and districts precludes them from extended proprietary ownership (as distinguished from governmental ownership) of revenue-producing property. And in those states in which the public property of the municipality is seizable for public debt, the value of such county and district property, except in the case of school districts, is relatively small.

477. County Debt. In a large, rough way, the figures for assessed valuation, as presented, suffice for ordinary investigation. But the county debt-statement, as customarily understood, is *utterly misleading*. There is nothing else in the county statement, or in the usual statement of any other civil division, which misrepresents the facts as this. Not that the debt-statement is literally incorrect, for this is not the case, but that the ordinary inferences cannot be drawn from it. If the assessed valuation of a county is the sum of the assessed valuations of its subdivisions, then the *real* debt of the county should be the sum of the debts of the county and its subdivisions; and there is no fairness in exhibiting the ratio of county debt to county valuation, unless our methods of arriving at the totals of debt and valuation are the same. As a matter of fact, however, by county debt we do not mean the *real* debt of the county, but only the debt of the political unit called county, irrespective of the debts

of the included political units. It is unlikely that this method of computing county debt arose from any nice observance of the letter of the law, but rather from the ease with which the nominal or direct county debt-statement was to be secured, as compared with the necessity of search in ascertaining the *real* debt of the county; and furthermore, because the county debt-statement is much more presentable when construed literally.

478. The Real Debt of Municipal Counties. It is plain that the discrepancy between *real* and *direct* county debt is of most importance in municipal counties, for it is in these that the bulk of indirect or municipal debt is to be found. Perhaps as good an illustration as any is Allegheny County, Pennsylvania. Allegheny County includes, among other cities, the great manufacturing centers of Pittsburgh, Allegheny City,—(these two now consolidated),—McKeesport, Braddock, Wilkesburg, Homestead, and Duquesne. The assessed valuation of this county is nearly equal to the combined assessed valuations of Maine, New Hampshire, and Vermont, and in general is greater than that of thirty-two of the forty-six states.¹ On Feb. 1, 1908, it amounted to \$1,032,267,850. The "net debt" at that time was \$8,040,548, or considerably less than 1 per cent. The bonds of Allegheny County are considered with good reason as one of the strongest of investments. But it is a matter of conjecture to what extent this "less than 1 per cent." influences the purchase of the bonds. Certainly under customary methods of exhibiting debt-statements, no other form of presentation would be fair to the county. If, however, the sounder custom prevailed of exhibiting the *real* net debt of the county, i.e. the total net debt of the county and its subdivisions, the investor would have a truer idea of his security, and the bonds of Allegheny County would appreciate, on comparison of its *real* net debt with that of other municipal counties, for the net debts of Pittsburgh, Allegheny City, etc., are low, as city debts go.

479. With the cooperation of the officials it would not ordinarily be difficult to compute the real net debt of a county. It is a simple sum in addition; and it would have the inestimable advantage of allowing fair comparisons with the debt-statements of the other municipal divisions. In financial statements, as in everything

¹ This is the reading of the usual bond-circular. We violate, here, our principles of comparison, by not reducing the assessed valuations to a common denominator of real valuation.

else, the whole truth in the end is simpler than the half truth, and works for the best interests of every one concerned.¹ In want of the figures for real debt it is best to appraise the material credit of municipal counties at somewhat less than the credit of the leading municipality or municipalities in the county. This rule will have exceptions. Many would except Allegheny County. The bonds of Essex County, New Jersey, because of peculiar local conditions, often sell to slightly better advantage than the bonds of Newark, which is situated in it. Yet, in general, the principle holds good, particularly for "metropolitan counties," i.e. counties which are coextensive with, or wholly dominated by, the great cities of the country. Other influences of course are at work upon county credit beside the debt ratio, and this matter will be taken up in greater detail when we come to speak in particular of municipal and metropolitan counties.

490. The Real Debt of Rural Counties. Although, as we said in the last paragraph, the discrepancy between real and direct county debt is greatest in municipal and metropolitan counties, it is likely to arise in rural counties as well. Rural counties, in part or in whole, may be situated in, or may include, special assessment districts for road improvement, for the installation of conduit water supply, and for the reclamation of land by drainage or irrigation. Since the taxing districts created for these purposes are usually supported by levies only on the land benefited, it often happens that rural counties have heavier tax-burdens on some parts of their territory than on others; and this fact is not likely to appear in a statement of the county debt. Still, since the financing of rural counties is so much simpler and without sophistication, their fiscal condition is generally set forth in its right light. Cass County, Indiana, for illustration, has a "general," or direct debt of \$71,680; but owing to a peculiar decision of the State Supreme Court (which has analogues in one or two other states), the improvement of roads becomes a township, rather than a county, affair; and therefore townships of Cass County have issued \$196,387 in bonds payable in each case by levies on the township improved. Yet since these bonds are really a contingent debt of the county, they appear, as they should, in the total debt as exhibited by the county.

491. Since, now, the statement of a county's net debt may be so wide of the mark, we must not permit ourselves the luxury of

¹ For the application of the "real debt" principle to city credit, see the next chapter under the caption, "City Debt" (§§ 596-600).

debt-comparisons, as between county and county, but especially as between county and city, without making due allowance for what may be called "included debts." To do so would be to indulge in the same sort of fallacy that we exposed in the comparison of assessed valuations, in the preceding chapter.

482. Contingent Debt; Quasi County Bonds. The indirect sort of debt represented by the Township Bonds of Indiana counties is not the only kind of county contingent debt. Indiana will serve for example as well as any other state. Sullivan County has no direct, or "general" debt; but with an assessed valuation of \$20,480,315, it has a contingent debt of \$764,866, consisting of road, ditch (or drainage), and levee bonds. St. Joseph County, with a direct debt of about the same amount, has a few ditch bonds outstanding. That these indirect or contingent obligations, with their less assured status in the eyes of the law, are held in lower esteem, is to be seen in this instance in the interest rate. All the other bonds of St. Joseph County are 3½s, 4s, or 4½s; but the ditch bonds are 6s. Westchester County, New York, recently issued some 4½s of doubtful genealogy. It was the general opinion of banking houses that these were only quasi county bonds,—a sort of special assessment issue, secured by taxation against only such portions of the county as would be benefited by the improvement; although the county itself undertook to make the collection and father the transaction. As a result only three bids were received for the bonds, and these only at a lower figure than Westchester had a right to expect had they been a direct obligation.

483. To what degree quasi county bonds are really a contingent debt of the county depends, to a certain extent, on the nature of the bond, but more, on the attitude of the courts of jurisdiction. The federal courts, outside of the 7th Circuit, and most of the state courts (with the particular exception of Illinois), hold the including municipality liable for these Special Assessment bonds. The subject will receive more extended treatment in the chapter on District Bonds, under the caption Special Assessment Bonds.

484. Debt Limitations. A partial recognition of the fact that the direct, or even the direct and contingent, county debt is but a part of the real debt, is seen in the stringent limitations to the county debt, as compared, often, with the limitations to other kinds of municipal debt. Again we may look to Indiana. Although the other municipalities of the state are permitted to incur funded obligations to the extent of 2 per cent. of the assessed valuation,

counties for the most part are limited to not much more than 1 per cent., and certain kinds of debt-creating activities which are permitted the other civil divisions, are forbidden the counties. We find the same sort of discrimination in Utah, where cities and towns are given a nominal debt-limit of 4 per cent., but counties are limited to 2 per cent. In Oregon the framers of the constitution of 1857 restricted the debt of any county in that state to \$5,000; but left the terms of restriction for the other civil divisions to the discretion of future legislatures. Although an inadjustable restriction such as Oregon's is highly undesirable, and encourages resort to subterfuges to circumvent the constitution, nevertheless it is a recognition of the peculiar relation which exists between a county's net debt and that of its included municipal divisions.

These that we have discussed are the leading features of the usual county statements which differ from those of city or town. For further details the investor or student is referred to the corresponding paragraphs in the chapter on City and Town Bonds. The second half of the chapter on State Bonds also may be helpful.

VALIDITY

485. Having disposed of financial competency,—the first consideration in ascertaining the credit of a county, in so far at least as it is to be ascertained from statistics,—we are prepared for the succeeding topic, validity.

486. With the gradual fixation of municipal bond law, and of bond recitals, and of methods of issue under trust company supervision and certification, the best informed of bond buyers may scarcely hope, by taking further thought, to safeguard himself to any greater extent than will a reliable banking house that serves him. If buying refunding loans he may look up the character and history of the loan refunded, and accept no bonds that refund an issue concerning which there has been trouble, as in the Muhlenburg County, Kentucky, Refunding 5s and the Hinsdale County, Colorado, Refunding 4s. Loans refunding issues validated by the United States Supreme Court might be an exception to this rule, having been approved by the court of last resort; but even then, as in Pima County, Arizona, Territorial Funding 3s, other grounds of trouble might arise.

487. Furthermore, he may restrict his purchases to loans created for objects properly accomplished and paid for by county organiza-

tion. He will accept as proper purposes of issue when statutory authority is conferred, loans for courthouses and jails, since the county is a judicial unit; also for schoolhouses, asylums, poor farms, roads, culverts, and bridges; and in most states except Michigan for railroad aid. Irrespective of state laws he will be suspicious of loans issued in aid of state institutions or private corporations other than railroads. He will refuse county bonds issued to build state normal schools, armories, sugar mills, water, gas, and electric light works, or bonds to defray any other expenditures not in strict accord with a county's functions. Above all things he will read with utmost care the statement upon the instrument he buys, remembering that in properly drawn bonds the municipality that issues them is estopped from many causes of illegality by the very recital. Had holders of Green County, Kentucky, Railroad-Aid bonds observed this precaution before buying, they would not now be cherishing them as *priceless* mementos of the blue-grass region.

488. Yet it does not follow, because a bond has been issued in an irregular manner, that the courts will permit its repudiation, as Hitchcock County, Nebraska, found out in 1905 when the United States Circuit Court of Appeals decided that "although all the requirements of the law may not have been observed, that fact is not sufficient ground for the repudiation of the bonds when they come into the hands of an innocent person for value, provided there has been no legal obstacle to the county officers' complying with the requirements of the law." However, it is better to be sure than to be sorry; and the best way to avoid invalidity in municipal issues is to buy them only of the most responsible banking houses, and if the issue is new and untried, only when certified to by a responsible trust company, and when accompanied by a favorable legal opinion from responsible bond attorneys. But, after all, this caution applies to city and district bonds as well as to county.

489. **The Partition and Annexation of Counties.** There is one phase, however, of the legal situation in counties,—particularly large counties in the still unsettled West and Southwest,—which sometimes causes disquiet to holders of this class of issues. The large counties of Idaho, Arizona, New Mexico, and Montana,—counties, some of them greater in area than the smaller New England states,—which have arrived at that stage of development demanding a more intensive agriculture, often become too unwieldy for the proper exercise of county functions under the conflicting demands of diversified interests. This is especially the case when

the surface of the land in one part of the county has been retrieved by irrigation, or drainage, or otherwise, and the remainder is in pasturage. Then the variance of two types of people may make a slight political separation advisable, as in the separation of Latah County from Nez Perces County, Idaho. The adjustment and resurvey of state and county boundary lines is another cause of the partition of counties.

490. Quite the opposite phenomenon, the annexation of counties, is accomplished in the interest of various political plans, not only in the West, but in the East, also. Redistricting, as a political vote-getting device, is at least as early with us as 1812, for it was in that year, when Elbridge Gerry was Governor of Massachusetts, that the Americanism, *gerrymandering*, was coined to describe it.

491. The partition and annexation of counties (and the principle holds good for all municipalities) need not and usually do not cause serious disturbance of bond security. When a state legislature changes the county boundaries it may reapportion the indebtedness in any way that seems proper, provided that in so doing it does not impair the obligation of the municipal contract, i.e. seriously impair the bond security. The difficulties arise from the fact that oftentimes the legislatures are remiss in their duties, and altogether neglect to redistribute the old debt. In lieu of specific legislative apportionment the general principle holds, that, when in the partition of a county, the original municipality is not abolished, the obligations of that county remain with it, and do not hold on the segregated territory. And in like manner, when territory has been annexed to a county, the annexed territory is relieved of its obligations under the old municipality and assumes those of the county of which it has become a part. This situation is not often met. However, in 1893 portions of Mora County, New Mexico, were reincorporated in new counties under legislative direction.

492. When, however, by the partition of a county, two or more counties are formed, and the old county abolished, the apportionment of the debt, in want of legislative provision, will be on the broad principles of equity established for these cases by the United States Supreme Court; the debt will be distributed pro rata, according to the relative taxable valuations of the segregated territories. For a case of extinction see the former county of Alturas, Idaho.

493. But by far the commonest kind of partition is that in which the remnant territory retains its municipal identity, and the frag-

ment becomes a new county. Bond law, in this circumstance, would be more susceptible of dispute. As a rule the indebtedness has received legislative adjustment. Otherwise it generally remains the sole obligation of the parent county; and its offshoot escapes the debt. But this need not disturb the bondholder. Under the law of contracts he has recourse upon the new county in default of the old, in so far as the new county was part of the old at the time of the contract. Those interested will find material for study of this class of indebtedness against the counties of Stevens, Washington; Spartanburg, South Carolina; Ada, Idaho; Missoula Park, and Deer Lodge, Montana; and Apache and Yavapai, Arizona.

494. Doubtless it would surprise many people to know with what little friction in regard to the reapportionment of indebtedness, the partition of counties has been accomplished. There is reason for this. But it is merely public good-fortune that in the partition of states or of territories to form states (Massachusetts, Virginia, Dakota, etc.) the notorious "West Virginia Certificates" represent the only loss to bondholders. Theoretically the danger of loss from ownership of state bonds, in partition, is much greater, for it is not possible to compel the adjudication of disputes. But for county obligations a board of apportionment, or an arbitration committee, with legislatively derived powers, can enforce its findings, and the federal courts can give adequate relief in equity. Nowhere is that illustrated to better advantage than in Pima County, Arizona, which, with a heavy load of unsettled railroad-aid debt hanging over it, was able to accomplish the segregation of a portion of its territory to form the new county of Santa Cruz, by releasing Santa Cruz from its share of Pima County's debt on the surrender by Santa Cruz County of the equivalent in its own bonds.

495. Occasionally the partition of a county has weakened the standing of bondholders in case of previous default. In 1905 a writ of temporary mandamus, issued to the Commissioners of Santa Fé County, ordering them to levy a tax to amortize some defaulted bonds of 1882, was resisted by the taxpayers, partly on the ground "that considerable of the area and property of Santa Fé County at the time of the default and the first mandamus has since been annexed to Rio Arriba and Torrance Counties, and that much new property has been placed upon the assessment books since the default."¹ In want of reliable information we hazard the conjecture

¹ The *Denver Republican*, August 24, 1905. (Quoted in the *Commercial and Financial Chronicle*, Vol. LXXXI, p. 1059.)

that this partition was instigated for the very purpose of avoiding payment, and that for this reason the bondholders will ultimately be sustained by the courts. It seems not so much an exception to the usual outcome of county partition, as an exemplar of ineradicable bad faith,—a part of the topic to which we have now arrived. Various offers of compromise have been refused by Santa Fé County bondholders. The outcome of this controversy is awaited with interest.

GOOD FAITH

496. It is to be regretted that a study of county conditions does not yield us as satisfactory assurances for the future regarding good faith as regarding validity. In relating the history of state bonds, the unpleasantness of dwelling upon past repudiation was mitigated by the unmistakably sound condition of present state credit, and by the safeguards of constitutional restriction built against future temptation and unwisdom. It is true that we have a right to believe that never again will counties of the United States be brought to face a combination of circumstances so unfavorable to civil credit as those of the forties and seventies; and we have the satisfaction of knowing that at the costly tutelage of experience, the people of this country, as a whole, have learned the simple financial lesson that it is cheaper to pay a debt than to disown it. But still, we have to face the fact that many municipalities have outstanding perfectly valid debts, obligations in ethics as well as in law, which they can pay, and won't pay, and intend never to pay. The most flagrant instances are usually in rural counties, for the reasons we shall set forth.

497. *The Extent and Cause of County Repudiation.* During the Reconstruction Period, before the vogue of reclamation and special assessment districts, and other newfangled devices for debt-making, the political unit that suffered most from war and the expansion of credit, was the county,—especially the rural county. Man for man and dollar for dollar, no other civil division at that time lay so utterly prostrate as the rural county. The typical rural county, in the nature of the case, was in the West and South. Men from Eastern cities, with a little capital, more imagination, and most shrewdness,—with well-drawn charts and easy speech,—inveigled the farmers into bonding their municipalities to help construct railroads by which their produce might reach better markets. Sometimes these roads were built; but in the flimsiest manner,

and did not pay, and were discontinued. Sometimes they were built in part;—a very small part. Often they were not even surveyed. Meanwhile the bonds had been sold and somebody had pocketed the proceeds.

498. The extent to which practices similar to these prevailed in the less settled parts of the country, seems incredible in this day and generation. To attribute them altogether to the wiles of Eastern capitalists, or to the stupidity of the municipalities, is to see but one side of a complex situation. If the East was "criminally" sharp, the West was "criminally" dull. If loans were secured from counties, et al., for railroads it was never intended to build, loans were floated by counties which they never intended to pay. But wherever the burden of the fault lay, the results are plain enough:—from \$12,000,000 to \$18,000,000 of municipal bonds, it is estimated, were scaled in Nebraska, Kansas, and Eastern Dakota alone,¹ and throughout the new country repudiation and default became almost the rule, rather than the exception. The extent of this repudiation of county and municipal debts, the greater part of which occurred in the Reconstruction Period, is not known, but has been estimated to be about \$1,000,000,000! "The most prolific field for municipal delinquencies has been in and near the naturally rich Mississippi valley, from Duluth to Mobile. . . . Of over three hundred municipalities in Illinois, more than one-third refused payment of bonds. Of one hundred counties, townships, and cities issuing bonds in Missouri, nine-tenths have defaulted. Kansas' record is somewhat better, but humiliating; while the bonded communities of Arkansas have been unanimous in attempting repudiation."²

499. The effect of this dispensation upon the county was most sinister. County organization and administration are very close to the people. State and city government is more complex, requires a higher order of intelligence, and is therefore at further remove from the aspiration and attainment of the average citizen. But then and now, any decent man, any respected farmer, might leave the plow like Cincinnatus, and become County Commissioner. Or more likely than not, he might be at the same time, both plowman and Commissioner. Into such an order of things let now the

¹ *Moody's Magazine*, February, 1906: "The West's Readjustment of Indebtedness," C. M. Harger.

² *The North American Review*, August, 1884, pp. 127-144 and 563-579. (Abstracted by A. D. Chandler.)

leaven of corruption work,—whether it be the bedazzlement of unpaid-for improvements, or the spirit of blind retaliation aroused by contracts paid for, in a sense, but unfulfilled,—and the untutored multitude and their county administrators are aroused from the smug complacency of their foolish debt-making, and in primitive passion deny their obligations at all costs and come what will.

500. The soberer minds which usually prevail in city governments incline toward a wiser application of the power of creating debt, and more legal procedure in case of the violation of contracts. Then, on the part of the citizens, as the intricacies of city accounting are less in reach of average understanding, and the taxpayers are not in voting majority, as in the county, a misapplication of a municipal loan creates less turbulence, and repudiation is less often the resort. This is why the good faith of counties, especially rural counties, is not to be so implicitly relied on as that of cities and towns. Changes of county administration, too, sometimes bring more epochal results, because there is not that momentum and continuity of policy which is fostered by a partly permanent civil organization such as we find in a large city government. Hence they say it was that in Buncombe County, North Carolina (of Congressional renown), \$100,000 Asheville and Spartanburg Railroad bonds were repudiated during a brief reign of the Populists in 1898. Buncombe County, of which Asheville, with a population at that time of about 12,000, is the seat, could hardly have been called a wholly rural county; but it is in North Carolina; and in a state with a record like that of North Carolina, a county would have to contain a large population to escape the suspicion of being rural in its credit characteristics.

501. **The Persistence of County Repudiation.** In presenting the extent and causes of county default it has not been explained why the spirit of opposition to law should persist to the present time. It is quite natural that states saddled with a tremendous and invalid debt, sometimes through no fault of the people at large, should bury it by constitutional amendment, and, being under no compulsion except that of public opinion, should be reluctant or unwilling to resurrect it. It is not so evident why counties, such as Macon and St. Clair, Missouri, should be willing to bear, for thirty to thirty-five years, the odium of repudiating their obligations. But the causes, for the most part, lie in the conditions already outlined. The notorious case of St. Clair County will serve excellently for illustration.

502. In 1870, St. Clair County, Missouri, issued \$231,000 bonds in aid of the Tebo and Neosho Railroad (now a part of the Missouri, Kansas, and Texas). The section contracted for was never built, and the county stopped payment on its bonds. The bondholders brought suit and secured judgment, but the county officers have ever since refused to execute the judgment by making a tax-levy to discharge the debt. Year after year the officials spent their terms in jail as the result of defiance of the law,—although now we understand, they (literally) take to the tall timbers straightway after election, instead; and to this day county repudiation is the election issue. Such a condition of things betrays a mania, an obsession, in the minds of the people, which is impossible in a community with cosmopolitan habits of thought. The assessed valuation of St. Clair County is not much over \$4,000,000, so that this debt of \$231,000, with its accumulations (its interest-rate is 10 per cent.), if paid in full, would fall very heavily upon the tax-paying voters.

503. A "modern instance" of wholly uncalled-for and unjustifiable repudiation, which arises out of those very conditions which we have described as obtaining in rural counties, is that of Henderson County, North Carolina. Henderson County had outstanding, in the eighties, some railroad bonds on which it was perfectly able to pay, and had paid, interest charges regularly. Upon the celebrated decision of the State Supreme Court invalidating the railroad-aid bonds of Wilkes and Stanley Counties, the authorities of Henderson County promptly followed suit in repudiation. Although the United States courts reversed this decision in the cases of Wilkes and Stanley Counties, and sustained the bondholders, still, it is to be seen that county credit cannot bear its own weight in the weaker states. Credit among them is not always voluntary, nor even "enlightened self-interest," but merely compulsory; credit, there, is, or was, not a matter of ethics, but of necessity and of law. The issue in these weaker states is still validity, as we saw in the chapter on State Bonds, in the case of Pitt County, North Carolina.

504. Now there is one very important aspect of county credit, brought to mind by these cases of St. Clair and Macon, which has not been mentioned as yet, and that is the simplicity of county debenture requirements. Proper objects for public expenditure we found to be very few in the nature of county organization; and the cost of these would be comparatively small. Therefore if it ever became convenient to repudiate an issue, a county,—a rural county,

particularly,—is not under the same necessity as a city to reckon the future cost of the loss of its credit. Probably we shall not see, for many a year, a public offering, successfully placed, of bonds of the defaulting counties of Macon and St. Clair, Missouri; Green and Muhlenburg, Kentucky; Lake and Hinsdale, Colorado; and Wilkes and Onslow, North Carolina.

505. In closing this subject of the good faith of counties it is only fair to say that the history of recent defaults is more promising. Occasionally we meet with an instance like that of Jefferson County, Washington, which has temporarily scaled its debt, or the interest on it, from actual inability to pay in full. No one can analyze the financial statement of this county and feel that the bondholders have a real grievance. They should have studied the conditions more thoroughly before purchasing. The attitude of Lawrence County, South Dakota, is reassuring. In 1907 Lawrence County was obliged to default temporarily on an issue of \$235,000 of 5s which matured during the panic. The whole amount has been taken care of to the entire satisfaction of the bondholders. About \$100,000 has been retired, and the balance has been extended at 6 per cent. (with privilege of redemption) for five years. Such an exhibition of good faith should materially help the credit of that community.

506. **Rural Versus Municipal Counties.** In everything relating to the administration and credit of counties, we have had to distinguish between those which were rural and those municipal. The discrimination has been so pointed that little more need be said here. A buyer of bonds should never consider county bonds without having the distinction firmly in mind. Those features which we have observed to militate against county loans as a class are accentuated in rural county issues, and those features which prepossess in favor of city loans as a class are accentuated in municipal county issues.

507. Even when the county administration is entirely distinct and apart from the administration of the included city or cities, the influence of the more important city interest is bound to tell in favor of better fiscal methods, greater sobriety in debt-incurrence, less eccentricity in all relations which affect bondholders. Particularly, having need of the good-will and confidence of investors for future issues within the corporate limits, municipal counties will see to the prompt payment of debts. Of the many counties in the United States with defaulted obligations as yet

unadjusted, very few indeed can properly be called municipal, i.e. containing a city or town of 25,000 population, let us say.

508. Metropolitan Counties. There is little likelihood of overestimating the influence of strong cities and towns upon the good faith of the counties in which they are situated. If the principle holds at all it can be carried to the extreme:—if there is security in a cosmopolitan population, in extensive establishments, in the presence of public institutions, and in talented civic administration,—other things being equal,—then the larger the population, the more numerous the establishments, the greater the institutions, the more businesslike the administration,—the better shall be the security behind the loans. So bond investors are justified in their marked preference for what we here choose to call “metropolitan county loans,” as distinguished even from municipal county loans. The presumption is that the metropolitan county bonds partake of the characteristics of the included great city or cities.

509. To ascertain in a crude way to what extent the interests of the city dominate the county, subtract the real (or in want of the real, the assessed) valuation and the population of the city from those of the county and observe what remains. This might be done with Seattle and Kings County, Washington. In this case the ratio of assessed and real valuation being the same, there is no need of figuring the real valuation. When there are no constitutional or statutory limitations, note also, the ratio of the respective tax rates, having in mind the things to consider in tax rates,—as in Hartford County, Connecticut. When the city tax rate is many times the county rate, very evidently the city has assumed the major portion of civic functions which might otherwise entail upon the county; and the county's credit is to that extent benefited.

510. The connection between metropolitan cities and their counties has become so intimate that Philadelphia, St. Louis, and San Francisco, coextensive with counties of the same names, have become practically merged with their counties, and the counties under city control, have no separate debt. The situation in Providence is somewhat similar. Providence County is without debt, although not coextensive with the city of Providence, and therefore not under its direct control. The bond-buyer who wishes to purchase county obligations of the highest grade, will seek those which comprehend great cities of established credit, especially when the statistics of the city and its county reveal an intimacy of function and administration, such as is to be observed in Seattle and Kings

County, Chicago and Cook County, Cleveland and Cuyahoga County, Albany and Albany County, and Boston and Suffolk County.

511. Other County Bond Matters. If now, when investing, he relates the principles set forth in this chapter with those relating to credit in general, which were discussed in the preceding chapter, and with those affecting all municipal issues, which immediately follow in the chapter on City and Town Bonds, he will have a good working knowledge to assist in the right choice of county loans. Let him remember that although, *as a class*, County Bonds are inferior to City and Town Bonds, they are superior to District Bonds, and belong to the great division of United States Civil Loans, the strongest kind of investment security bought by the American people.

CHAPTER XVI

CITY AND TOWN BONDS: MUNICIPAL ASSETS

512. Municipal Corporations Proper. By city and town bonds are meant, generally, the funded obligations of *municipal corporations proper*, i.e. of those political subdivisions of the state which are voluntary corporations, as distinguished from the subdivisions which are created more specifically at the instance of legislatures, or of common councils, and are called *quasi-municipal corporations*, being *involuntary* in their creation. Counties, townships, and the other various taxing districts are usually involuntary corporations in the eyes of the law; but cities and incorporated villages are always, and towns are generally, voluntary bodies, or municipal corporations proper, and their funded loans may therefore be called *Municipals Proper*. More particularly, then, we deal in this and the following two chapters with the bonds of cities and of incorporated towns and villages.

513. This two-fold distinction between municipal corporations and their securities is by no means universal. The courts, and the legislatures of the states, do not always adhere to it. But it is nevertheless a real distinction, which we have met and shall meet again, especially in discussing proper purposes of bond issue and their relation to legality. Nevertheless most of the principles which will be laid down in this discussion of City and Town Bonds are applicable to the whole division of *Civil Loans*.

514. Within the subdivision of *Municipal Corporations Proper*, covered by this chapter, there are no thorough-going distinctions. The same principles are applicable to incorporated towns and villages, as to cities. Many a town or village of this sort is larger and more important than some individual cities, especially in certain groups of states. The "city" of Williston, North Dakota, had a population in 1900, according to the federal census, of 763; and the "city" of Fort Pierre, South Dakota, of 395, and Ventnor City, New Jersey, in 1905, of 116. The "town" of Brookline, Massachusetts, had a population of 27,792 in 1910, and an assessed valuation in 1906 of over \$100,000,000. The Con-

necticut towns outrank the cities in many respects,—quite apart from wealth or population. By the Revised Statutes of 1902 the towns may incur debt without limit, under a general bond-enabling act; but the cities have not this privilege, unless by special act or charter.

515. Size, wealth, and prospects, then,—in other words those conditions which make for *financial competency* are paramount; and although financial legislation often discriminates between cities, towns, and villages, as such, it is usually on the tacit assumption that this is the usual order of their size and wealth, and of their competency. So in some states the discrimination is carried further, and statutes regulating, for instance, the authority and extent of debt-incurrence classify even cities according to their population.

516. By the constitution of 1851 the General Assembly of Ohio organized the cities of that state into two classes of three and four grades, respectively, according to population, to "restrict their power of taxation, assessment, borrowing money, contracting debts, and loaning their credit, so as to prevent the abuse of such power." Kentucky, in the constitution of 1891, limited particularly the debt-making power of the political subdivisions by a double distinction: she recognized the kind of municipal corporation and also its number of inhabitants. *Cities* in that state with population of over 15,000 might incur debt to the extent of 10 per cent. of their assessed valuation; *cities and towns* of 3,000 and over were limited to 5 per cent., and *cities and towns* of less than 3,000, to 3 per cent.; but *counties and taxing districts and other municipalities* were limited to 2 per cent.

517. This recognition by constitution and statute of the importance of *financial competency*, as indirectly indicated by statistics of population, brings us again to the lines of investigation we are pursuing for municipal issues. We have already found that the three principal factors which make for the security of municipal bonds, in the order of their importance, are *financial competency, validity, and good faith*.

FINANCIAL COMPETENCY: MATERIAL ASSETS

518. **The City Statement.** The public who buy city and town bonds, as well as county and other municipal issues, depend for information as to financial competency almost entirely upon the statistical statement of the bond-house circular. Of all these

municipal statements, the city statement gives the truest indication of material conditions because the records for cities are likely to be more complete and are revised at more frequent intervals, and for other reasons which we shall come to presently. Furthermore these records are more accessible, since they are to be obtained, not only in the city's offices, but also in periodical publications, notably the *Commercial and Financial Chronicle*. The records of the smaller quasi-municipalities, and taxing districts, especially when not largely bonded, are sometimes inaccessible to any but a most persistent investigator. Apparently, in the estimation of local officers, the smaller the community, and the more dubious its standing, the more sacrosanct its books. If one wishes to go behind the most recent printed records, or if no records are to be found, his usual resource is one or another of the several municipal officers, according to the kind and size of the municipality, and to the nature of the inquiry. But it is important to remember that no municipality is in any way responsible for the correctness of the statement issued; and the truth or falsity of the statement has no bearing upon the legality of any bond issue. Not often, however, has this immunity worked detriment to the creditors of the municipality.

519. The Tax Rate. The circular, offering a municipal loan, will sometimes mention the tax rate of the community. Considered apart the rate means little or nothing. Of all the items on the circular this is the most difficult of interpretation. And yet it indicates to what extent the municipality is drawing annually upon its resources to sustain, protect, and improve its social and corporate life. In analyzing the rate, when this is possible, one must make sure that it does not include too much or too little. "Tax Rate" may mean the total imposition, including state and county levies; "City Tax," "Town Tax," "Village Tax," should mean the tax of only the local community, which is usually, but not always, the major part of the whole. "Total Tax" is what its name signifies.

520. For purposes of comparison it will be desirable to separate the city tax from the county and state taxes. On the same grounds any tax rebate should be deducted. In some places this rebate is very considerable. Savannah, Georgia, is not very exceptional in allowing 10 per cent. On the other hand there will often be district and special assessment taxes of one sort or another, which are not exercised by the municipality as a corporation, and are not

included even in the "Total Tax;" but which are imposts, nevertheless, upon such a large portion of the property within the corporate limits that they cannot legitimately be overlooked. It is not to be expected that those whose interest it is to make a most satisfactory exhibit will go out of their way to include indirect taxes; but since any tax is a drain on resources, and since our usual object in analyzing the tax is to discover the amount of the drain, we must include and examine any special taxes we find. Two or three years ago Coffeyville, Kansas, had a total tax of \$70.50 on a 25 per cent. assessment. But in this tax was not included the special levy on the special debt incurred for sewers and roads, although this debt is nearly as large as the general debt. And moreover there is a Coffeyville School District which had a school tax of \$24. The fact that the School District has different boundaries from Coffeyville proper does not prevent the school tax from falling on a large majority of Coffeyville taxpayers, whose real "total" tax burden was well over \$100 a thousand, or 10 per cent. of the assessed valuation, or $2\frac{1}{2}$ per cent. of the real.

521. Assuming now that one has arrived at the real total net tax, he is justified in preferring a low to a high tax. A low tax generally implies a sound financial condition. Its natural correlate, if the city or town is economically run, is a low percentage of net debt, as in Lincoln, Massachusetts, with a tax of \$7.25 and a bonded debt of about 3 per cent. of the assessed valuation. Conversely, a high tax seems to imply an unhealthy condition, and a high percentage of debt, as in the village of Collinwood, Ohio, with a tax in 1905 (including the school district) of \$64.30, and an approximate total debt of from 20 to 25 per cent. of the assessed valuation. The real valuation is not reported.

522. But the exceptions to these generalizations are so numerous as to discourage any but the studious from seeking their drift. As we are led to expect from the law of averages, the extremes of high and low tax rates are to be found, generally, in small communities, which, of course, most acutely reflect in statistics any local idiosyncrasies of administration. Thus we find in Rhode Island many villages and towns with a tax rate of under \$10 a thousand on an assessed valuation of from 50 to 75 per cent. of the real. But the tax rate of Providence is \$16.50 on full valuation; yet not over a half-dozen cities in the country enjoy as good credit.

523. Under the peculiar form of civil government in Connecticut, where the unit is the town, and the town often includes a city

or a borough, the city or borough tax may be returned as separate from the town, district, county, and state tax, and therefore require adjustment to the usual basis of rate.

524. Another difficulty one often meets in considering the tax is a variation of rate within the municipality. In cities that are not wholly built up, e.g. those which are coextensive with great counties, the tax is sometimes regulated to the locality and to the improvements installed. Pittsburg, Pennsylvania, has a *city tax* of \$7.50; but over 25 per cent. of the real estate is charged with only the *rural tax*, which is two-thirds the city tax; and about .6 per cent. of the real estate has to pay only the agricultural tax, which is one-third the city tax. Scranton, Pennsylvania, has about the same tax plan, although there is not so much difference in the three tax rates. Stamford, Connecticut, has a system of scaled tax rates, as also Seattle, Washington. In Bellingham, Washington, we find four separate tax rates, one for each district of the city. But the cause is slightly different from that in the other cities mentioned except Seattle. Bellingham is a consolidation of several towns, and the distribution of the tax burden in this way prevents an injustice to the districts which came into the consolidation. Similarly New York has slightly different tax rates for the four boroughs.

525. We have thus far considered the tax rate in its present relation to the city in which it obtains. Such consideration begins to have value only when made the basis of comparison. Comparisons may be made with the previous annual tax rates of the same municipality, or with the present tax rates of other municipalities of the same class having other conditions as nearly analogous as possible. Better still, a comparison may be made, in settled communities, of the tax rate of a municipality, averaged over a period of years, with the tax rates of similar municipalities of the same class, averaged in the same way. But the moment we begin comparisons we must remember our principles of arithmetic; for tax rates are like fractions:—to be compared they must be reduced to a common denominator. The common denominator of tax rates is *full property valuation* (real valuation), and if for no better reason than advantages of comparison (since comparison is useful to interests unrelated to the bond business), all tax assessments throughout the country should be on the basis of full valuation. In 1907 Plattsburg, New York, had a tax of about \$50; New York City, of about \$15. But since Plattsburg was assessed for about

one-third value and New York for full value (nominally), the burden on the citizens of the town is only a dollar or two greater. It is a pity that the tax rate does not, of itself, show this. In finance simplicity and excellence are very nearly synonymous.

526. This common denominator of full valuation is not necessary, of course, in comparing the tax-burden of a municipality with its own past rates, providing that during the previous years the ratio of assessed to real valuation has not changed. The fixed ratio, in that case, is itself a common denominator. But in order to institute such a comparison we must know whether or not the ratio has remained unchanged. Within recent years there has been a growing tendency, especially in the East, to assess for "fair cash value." New York City made the change in 1903, and as a result the tax rate dropped from about \$23 a thousand to about \$14.50. Harrisburg, Pennsylvania, according to the usual financial records, had an assessed valuation in 1880 of \$5,384,629, and a tax rate of \$37.50. In 1889 the assessed valuation had grown to \$21,396,240, and the tax rate had declined to \$20.50. In want of definite knowledge one would infer that at some time between 1880 and 1889 the same sort of change had taken place in the assessment basis of Harrisburg property. But in 1890 the assessed valuation had decreased slightly (to \$20,412,135), and yet the tax rate dropped to \$12.25. Evidently, therefore, other influences were at work effecting these alterations.

527. The reasonable increase in a city's tax rate over a period of years is not necessarily an unfavorable sign, any more than is a reasonable increase in debt. Present heavy expenditures may be, and now usually are, an anticipation of increased assets and therefore of levy power. According to the Census Bureau, for the country at large the increase in rate of ad valorem taxation from 1880 to 1902 has been about \$2 a thousand on the estimated real value of all property, taxed or exempt. It is to be doubted if any figures are accessible to show the average increase of the tax rate for cities and towns, or for municipalities generally. The movement of population toward cities and the resulting tremendous urban development justify acquiescence in an average municipal increase far in excess of that for the country at large. Whether any city is exceeding its fair proportion of increase, whatever that may be, and whether it is justified in so doing, must be decided by the nature of its expenditures, and by the ease with which it can support its mandatory charges.

528. The necessity of a *sui generis* investigation of tax rates

is illustrated in Pulaski County, Arkansas, which had a floating debt in 1907 of \$163,011 and a bonded debt of about twice this amount. Instead of issuing long-term sinking-fund bonds with their comparatively light annual charges, the County elects (we assume, in want of knowledge to the contrary) to unburden itself of this floating obligation by heavy annual payments. The tax rate, which is about \$30 a thousand on a true valuation, must reflect this effort. We are further assured as to the motives of the County from the fact that the bonded debt is being retired in annual payments. Therefore a comparison of the County's tax rates over a series of years, or of the present rates with those of other Western semi-municipal counties, would have to take into favorable consideration this serial repayment feature of its financing. A tax rate which is high because a community is ridding itself rapidly of debt, really may be low in any true system of municipal economy. A prospective purchaser of any new loan of Pulaski County may well remember that in seven years the tax rate probably will be relieved of all the charges on the present floating debt and on about one-third of the present bonded debt.

529. It is hardly necessary to say that most comparisons of the tax rate of one kind of political division with another are void. As a rule the state tax rate is the lowest of those of the principal civil units. Then in order come the county taxing district, and city and town rates. The principal factors which make for this order are the relative current administrative expenses, and the fixed charges on the governmental "plant" per capita of included population. Constitutions and statutes recognize this inequality in the necessary expenses of the several kinds of governments, and limit their debt-incurring power accordingly. It was only when this principle became recognized that state credit became sound.

530. Furthermore, interclass comparisons of tax rates are void because the different units have, in part, different sorts of wealth as taxable resources. A review of the material assets of states in the chapter on State Bonds will recall to mind some of these differences. Then again, in isolated instances, political units have cut themselves off from ready comparison with other units of the same class by an unusual and arbitrary method of taxation. Wilmington, Delaware, does not tax personal property. Personal property at best is an obstacle in the path of him who seeks to read the message of the tax rate. There is little uniformity in the treatment of personal property, not only among the states, but within

a state. Massachusetts, almost always progressive in matters of political administration, has formed an assessors' association, one of the pressing duties of which will be to better the inequalities and injustices that arise from misuse of the power to tax personal property.

531. We have already remarked upon the necessity of coming to some conclusion as to what the true tax rate really is. We are again reminded of this need in attempting to compare the rates of municipalities in different states. The difficulty is that no rule can be formulated. From the standpoint of the economist no doubt the best way to compute the total tax-burden upon the property owner per thousand dollars of real valuation, rather than to accept the nominal city tax, although the bond attorney, with an eye to legality, will scan particularly the latter. The tax of Astoria, Oregon, in 1906 was only \$11 on a two-fifths valuation. This, of course, is impossibly low for a growing city of nearly 15,000 inhabitants. A little inquiry would have revealed a small state tax, a \$30 county tax, and special taxes, making a grand total of \$58. In this instance, as in many others, we find a coextensive school district with its own school tax. The case is by no means extreme. The West is full of them. And yet, as often as not, these qualifying conditions are overlooked.

532. **The Tax Power.** The real municipal tax rate is the index of the extent to which the tax power is being employed to support and acquit current and fixed charges. The extent to which that tax power *must be*, and the extent to which it *may be* exercised are the most important considerations in purchasing municipal bonds. The bondholder (or other municipal creditor, such as city contractor, or water company which has rented hydrant privileges to the municipality) ordinarily has only the powers of taxation to fall back upon in case of breach of contract. The creditor, however, has recourse to the full power of general taxation otherwise appropriated or limited by law.¹ General taxation includes the tax on real and personal property, and, when there are such, the poll tax and the business tax.

533. But the creditor, or for our purposes, the bondholder, must consider to what extent the statutes have conferred upon, or denied to, the municipality the general powers of taxation; for the courts are powerless to grant a remedy when the laws fail to provide

¹ Holders of special assessment bonds are not generally so favored. See the next chapter under Special Assessment Bonds.

for a sufficient levy, or when they restrict it to such an extent as to make it insufficient.

534. Specific Bond Taxes. It is to prevent mischances of this sort, which have been too common, that fifteen states have constitutional clauses requiring that municipal corporations shall not incur indebtedness without passing, at the same time or previously, irrepealable laws or ordinances which create for each loan a tax levy and collection sufficient to pay the interest and retire the principal within a stated period of years. By means of this *specific bond tax* the security for municipal loans is greatly enhanced in

California,	Iowa,	New Hampshire,	South Dakota,
Georgia,	Kentucky,	North Dakota,	Texas,
Idaho,	Michigan,	Oklahoma,	Wisconsin.
Illinois,	Missouri,	Pennsylvania,	

Of these states the life of the loan is limited to 20 years in California, Idaho, Illinois, Iowa, Missouri, New Hampshire, and Wisconsin. It is limited to 25 years in Oklahoma; to 30 years in Georgia and Pennsylvania; to 40 years in Kentucky; but no definite period is set in Michigan, North Dakota, South Dakota, and Texas, although Texas achieves the discharge of the loan in much the same sort of way by requiring an annual deposit of 2 per cent. in the sinking fund.

535. There are not a few respects in which Canadian finance, and particularly Canadian municipal finance, is in advance of our own. This matter of special tax is an illustration. In Ontario and all of the provinces west, Manitoba, Alberta, Saskatchewan, and British Columbia,—but not in Quebec,—it is required that for each municipal bond issue there shall be a specific tax levy for its support and ultimate acquittal. In the Maritime Provinces, New Brunswick, Nova Scotia, and Prince Edward Island, a special tax levy is required, and also a special act of legislature to legalize every bond issue.

536. In those states which do not protect bondholders by special bond taxes a substitute for the constitutional provision is often had by the passage of a municipal ordinance of the same tenor, which recites that "there shall be and hereby is levied a direct annual tax," etc., of some specified amount or annual percentage. And even in those states which have the constitutional provision, mu-

nicipalities (e.g. St. Joseph, Missouri, recently) will sometimes have their loans accepted by bond houses only on condition that a mandatory ordinance of this nature be passed; for attorneys feel that the constitutional provisions have not as yet had sufficient interpretation by the higher courts to be relied on solely.

537. Although only fourteen states have constitutional provisions, perhaps a majority of the bond-enabling acts passed by the various legislatures in all states have the same express authority for the levy of taxes to meet interest and maturing principal; and bonds issued under such authority offer as much remedy through the courts in case of default as if the provision was in the state constitution itself.

538. There is no reason why the same end may not be attained in municipal charters, and occasionally this is the case. The creditors of Vicksburg, Mississippi, have the satisfaction of knowing that the city is required by its charter to levy taxes to meet the *interest* on its bonds "and to apply any surplus of the sum so raised, after payment of interest, to the purchase of bonds at or below par."

539. It is not necessary, however, for the support and discharge of a debt, that specific levies be raised against it by constitution, statute, or charter. In American municipal bond law the implied power of taxation is a principle of universal application, as the federal courts have invariably held. Indeed it is only an extension of the constitutional principle that contracts may not be impaired. And even when loans have been issued, secured by pledge of certain definite collateral, such as stock, and no reference to, or provision for, the payment of the loan from general taxes has been made, the United States Supreme Court has held the tax resource valid for both principal and interest, and has issued writs of mandamus to compel levy and collection.¹

540. On the other hand the courts have not the power to levy or collect taxes, but may simply issue writs for the performance of these duties, and coerce the proper officials, when they exist and are to be found. For this purpose the political organization of the larger municipalities renders less difficult the execution of the court's order.

541. The Tax Limitation. But the power of taxation, general or special, implied or specific, cannot be invoked by the bondholders

¹ For the application of this principle to special assessment bonds, see *The Bonds of Taxing Districts*, under the caption *Special Assessment Bonds*.

when its application will conflict with ad valorem tax limitations already set by law. These limitations have already been discussed in their relation to state and county debt. Probably only three states have sweeping *constitutional limitations*: Kentucky, Alabama, and Oklahoma. Kentucky grades her tax limitations in the same general way that we have found her debt limitations graded:—by giving greater license to the larger municipalities. The maximum tax permitted cities and towns having a population of 15,000 or more is \$15 a thousand; cities and towns with a population between 10,000 and 15,000, \$10 a thousand; those less than 10,000, \$7.50 a thousand. Counties and taxing districts are limited to \$5 a thousand, except that counties may add \$2 for public roads. Alabama, with certain exceptions, makes the flat rate of \$5 a thousand for her municipalities! Oklahoma restricts the state to \$3.50, the counties to \$8 (with exceptions for school purposes), the townships to \$5; cities and towns to \$10; and school districts to \$5. By the constitution of 1874 Arkansas has the \$5 limit for her counties. Other municipalities in the state are not limited.

542. A few states have statutory limitations that serve the same purpose and are much more to be feared because sometimes more difficult of interpretation. Ohio, in the constitution of 1851, delegated this power to the legislature. The result attained is the same. The taxpayers are given a crude sort of protection against burdensome imports,—a protection, nevertheless, which is unnecessary with proper debt restrictions, and is prejudicial to the credit of a state and its municipalities. How tax limitations inure to the detriment of municipalities is best illustrated in the case of Alabama. Under the old constitution this \$5, or $\frac{1}{2}$ per cent. tax limitation obtained, as at present; but there were no debt restrictions. The city of Birmingham, under the initial impulse of a new industrial life, which has since made it famous, felt called upon to incur debts in anticipation of an increasing power to pay, and as a result became unable to raise the annual tax for interest. To relieve the situation, an amendment to the old constitution was passed, granting Birmingham an increase of $\frac{1}{2}$ per cent. in the tax rate, that it might meet the interest charges and make some headway toward refunding.

543. In view of this and other similar experiences, the Constitutional Convention of 1901 supplemented the tax limitation with a graded debt limitation. At this time the city of Troy, Alabama, was in default of interest and the Constitution of 1901

authorized an additional $\frac{1}{2}$ per cent. to the tax limitation, *subject to the vote of the city*. "This provision, however, is not sufficient to pay the interest," said the *Commercial and Financial Chronicle*. But inasmuch as the city tax rate is only \$5 a thousand upon an assessed valuation that has since run from \$1,162,000, to \$1,240,000, and the total bonded debt is only \$144,500, it is hard to see why Troy found her revenues deficient. At any rate interest has been paid of recent years.

544. Therefore in addition to the legal obstacles which a tax limitation raises against the payment of debts, it encourages a spirit of independence in the taxpayers that in the long run is bound to be reflected in the credit of the city and state. Of course this is the unfortunate fact in Alabama.¹

545. It must be borne in mind that restrictions upon the tax rate usually cover, not only moneys raised to pay the interest and principal of loans, but also current expenses. In municipalities proper, expenses are comparatively heavy, and therefore the risk of the bondholder is proportionately increased; for the municipalities themselves, and not the courts, are the arbiters of their own domestic economy; and when they choose not to act in good faith it is much easier for them than for quasi-municipal corporations to swell budgetary appropriations, to the impairment of their power, within the law, to pay their debts by assessment. San Francisco, a city with splendid credit, has met this phase of tax limitation in an excellent and unusual way. The city charter restricts to \$10.70 the tax rate *for current expenses and maintenance*, but leaves unhampered the power to levy for the support and discharge of funded debts.

546. Assessed Valuation. A municipality acting in bad faith, especially under the temptation to default which is fostered by material calamities, may attain the same result under a law restricting the power of taxation, by reducing its assessed valuation to the point where the tax rate is little more than sufficient to care for current expenses. This is the extreme illustration of the dependence of the tax power upon wealth which it may tax.

547. Assessed valuation, or assessment, an item always on the bond circular under the city statement, is not hard to understand. It is the value put upon property by assessors as the basis for tax-

¹ It seems incredible, but Massachusetts, by the Acts of 1910, has placed a nominal city tax limitation of \$10.55 a thousand. The limitation is no hardship, but at this late day seems a strange departure from sound fiscal policy.

ation. The "grand list" of certain states, e.g. Connecticut, is a synonym. But the grand list of Vermont (1 per cent. of the real value) is quite another thing. The "tax duplicate" is another synonym.

548. The Basis of Assessed Valuation. Assessed valuation is of importance chiefly in its relation to the tax rate and to real valuation. *Real valuation*, in its turn, is liable to different interpretations from different assessors. Even when the law stipulates the assessment shall be at full value, it is often allowed to fall far short of that. Nominal equivalents are "true valuation," "fair valuation," "market valuation," "actual valuation," "real valuation in money," "nominal real valuation," etc., etc., and in Iowa "appraised valuation" (as distinguished from "assessed valuation."). This lack of precision in terminology is itself a sign of different interpretations. But for practical purposes real valuation is an invariable *common denominator* sufficient for purposes of comparison; and assessed valuation must bear some definite ratio to it. The relation of assessed valuation to debt will be noticed in the next chapter under the topic Debt Limitations and Restrictions.

549. Comparison of Assessed Valuations. Since assessed valuation is such an arbitrary matter, and since there is no general fixed ratio of assessed to real valuation, those who deal with statistics should be chary of comparisons when valuations have not been reduced to the common denominator. A prominent city official of New York sought recently to reassure business men in regard to the tremendous increase in the metropolitan debt and the budgetary appropriations by a comparison of the assessed valuation of New York with that of other communities. "When the Commissioner presented a map showing that the assessed values in the entire United States west of the Mississippi River, including Minnesota and Louisiana, totaled \$5,249,072,325 against the total assessed valuation in this city of \$7,158,190,000, the business men gasped."

550. Whether the comparison was qualified or not, it does not gain in force when the explanation is forthcoming that New York is assessed at nominal full value, but many of the western states at not more than one-third value. In Nebraska, under the general revenue law of 1903, property is assessed for taxation at 20 per cent. only, of actual value; in Iowa the rate is 25 per cent., and in Kansas, at the time of the comparison, about 33 per cent. (now full value). The city of Pekin, Illinois, was exceptional, but not isolated, with its assessment at 5 per cent. of actual value; and

Ellsworth, Kansas, at 10 per cent., and White County, Illinois, at 12½ per cent.

551. In general it should be remembered that the North Atlantic tier of states is committed to a very high assessment ratio, and the South and West to a low ratio. Conversely, of course, the average tax rate in the North Atlantic tier is very low, and in the South and West very high. The chief cause of both facts is that the great burden of municipal debt is being borne by the North Atlantic tier. Every year this division floats more municipal loans than all the rest of the country put together. The real valuation of this North Atlantic division has been subject to less fluctuation in the past than that of the other divisions; and it has been able, with greater safety, to fix its tax rate upon full values. But the recent financial depression has made us realize that land valuations in the West, under conditions made stable, agriculturally, by irrigation (which is immediately independent of rainfall), and commercially, by growth in population, are prepared for a full assessment.

552. If uniformity of accounting is desirable for railroad and industrial corporations, it is desirable for municipal corporations. Even now, when a city in the West is hard pressed to meet annual charges on its obligations, under customary valuations it will, at times, tax upon full valuation, the laws permitting. Thus Keokuk, Iowa,—although almost every other municipality in the state taxes upon a 25 per cent. valuation basis.

553. Intercity comparisons of assessed valuation are not so common among the bond-buying public as comparisons of assessed valuations in the same city over a period of years. The principle need hardly be touched upon again that this sort of inquiry must be on the lookout for any influences which may have changed the basis of valuation. Such influences may be economic, as in the case of certain Nevada mining towns in recent years; but they are more likely to be bookkeeping influences. For instance, as the result of an amendment to the Connecticut statutes in 1901 the corporation stock tax was made collectable by the state, and through the state, distributable to the town treasurers. (The same thing occurred in Massachusetts in 1864.) So the assessed valuations of all the Connecticut towns are depleted to that extent, since 1901. Hartford, the home of great insurance companies, lost, in this new adjustment, two-thirds of her personal valuation. On the other hand, a comparison of New Haven's valuation at that time would

show the opposite effect, since a stronger counteracting agency was at work: in 1900 New Haven changed from a 51 per cent. to a full valuation basis.

554. The Components of Assessed Valuation. Property, for purposes of taxation, is subject to various classifications, the main division being into realty and personalty. In some states, railroad, express, telegraph, and telephone companies make returns of city property directly to the state, to the detriment of the city statement. Stock, banks, and franchises are at times inventoried separately, and assessed and taxed on separate bases. Thus realty in Big Rapids, Michigan, is, or used to be, on a two-thirds basis, but personalty on a one-third basis. In Roanoke, Virginia, there is no distinction between the real and the personal assessment basis, which is two-thirds, but the corporation assessment, a distinct inventory, is on a three-quarters basis, and bank stock, at market value. In about 21 states franchises are specifically included in the general property tax. It has been mentioned already that personal property sometimes is not taxed at all—as in Wilmington, Delaware. Figures for total valuation are rendered somewhat inaccurate when there is not an annual revaluation of real estate.

555. The Relation of Realty to Personalty. Just as the rule that a low tax is preferable to a high tax has so many exceptions as to discourage its application, so has also the rule that the Personal component of Assessed Valuation should be a high percentage of the total. It is only by repeated application to towns of both good and poor credit that it becomes safe so to generalize. It would be invidious to call the roster of cities and towns taken as examples of poor credit; but an examination of 20 representative municipalities of each class leads to the conclusion that when personal property represents one-third or more of the real, the credit of the community is satisfactory, and its tax rate per thousand dollars of real valuation is likely to be low. In the West the personal property ratio is slightly lower for the same grade of credit. The town of Milton, Massachusetts, is very exceptional in having a personal valuation slightly greater than the real, and we find the low tax rate of \$11.50. Brookline's ratio of personal to real property is about 45 per cent., with a tax rate of \$9.

556. On the other hand it is not to be denied that personal property is getting to be less a tax resource of municipalities, with the gradual change of method in imposts. As corporation stocks, savings bank deposits, mortgages, and local municipal bonds dis-

appear from the assessment, one may be inclined to prefer a high rate of real valuation. A large part of this personal wealth, however, disappears from the duplicate only to reappear as wealth taxable in new form. Thus the shares of public utility corporations may not be taxed in certain states, but the companies themselves may be fully taxed by the state direct, through their franchises or otherwise, even though the values do not appear on the municipal assessors' books; and the tax may be prorated among the interested municipalities. A reduction in the amount and kinds of taxable personalty has sometimes been welcomed by real estate men, e.g. in Boston, since it has been thought to attract as residents men of large affairs.

557. Other Resources; Secondary Income. Having disposed, now, of the wealth which is the ordinary resource of the tax power, we come to those other material assets of a municipality which, though not taxable, contribute to its financial well-being. For convenience they may be divided into assets that are, and assets that are not, revenue-producing.

558. A city hall, or courthouse, or library, usually brings the community no direct return on the investment; though it may be sub-let in part, and thus become productive. But in so far as municipal ownership of the structure saves rentals and other expenditures it contributes, of course, to the city's net income. This is to be remembered in connection with New York City's tax-exempt municipal property, now appraised at \$964,309,185.¹

559. The very presence in a community of a large amount of property exempt from taxation, whether municipally owned or not, attests a civic intelligence and a regard for institutions, which inspire high public credit, even if they do not minister at first hand to the exchequer. Of such property are churches, hospitals, charitable organizations, etc. Many of these institutions are at no great remove from being real productive assets. College and university towns would be more fairly rated, commercially, at the value of all property, whether exempt or not, for the institutions bring to the towns, in yearly revenues which are converted into taxable wealth, several times the interest on the wealth which is not taxed. In 1905, New Haven, Connecticut, estimated her tax-exempt property, including Yale University, at \$22,822,470, as compared with assessable property, \$110,001,166. Cambridge,

¹ 1910. Tax-exempt property in private and private corporation ownership was appraised at \$322,365,754.

Massachusetts, has no accessible list of tax-exempt property as a whole, but the exempt real estate owned by Harvard University was appraised in 1907 at \$7,378,000 on an assessed valuation for the city of somewhat less than New Haven's. "It is worth all it costs, and more," says the President of the Cambridge Taxpayers' League, "to have Harvard located in Cambridge." Ithaca, New York, because of Cornell University, had at that time an exempt valuation of \$10,874,735, which is even greater than the taxable valuation, of \$7,219,440.

560. Among possible productive assets may be mentioned treasury holdings of cash, of railroad securities, of the stocks and bonds of local water, gas, and electric companies, and the city's holdings of less readily convertible forms of wealth such as delinquent taxes, real estate, etc. The sinking funds are important assets to be considered separately in connection with net debt.

561. *Cash assets* of the larger municipalities are often of much greater value than most people realize. On January 8, 1907, Philadelphia had nearly \$18,000,000 in cash in her treasury, apart from sinking funds in the sum of \$1,124,000. This \$18,000,000 was equal to about 21 per cent. of the total bonded debt. The value of cash was shown by the Baltimore fire. In 1902 the City of Baltimore sold her interest in the Western Maryland Railroad for about \$8,750,000, and approximately half the sum was deposited at interest subject to 30-day draft. After the fire this money was withdrawn to meet the extraordinary needs.

562. Another notable instance of *proprietary interest in railroads* is that of Cincinnati, Ohio. The Cincinnati Southern Railroad, owned by the city, is leased for a long period of years at an average annual rental (including obligatory charges for a sinking fund) practically sufficient to pay the interest on the city's net funded debt. Portland, Maine, in like manner, has held for years a sufficient number of shares of the Portland and Ogdensburg Railroad (under 999-year lease to the Main Central at 2 per cent. on the stock) to pay two-fifths of its interest charges. Most of these shares have now been sold to retire the funded debt as it matured.

563. Sometimes municipalities acquire the *securities of public service corporations* for purposes of municipal ownership or control, or to encourage local enterprises that benefit the community at large. These acquisitions may or may not appear in the debt statement, according to circumstances; but they suggest a possible

intimate relation between *secondary assets* and *municipal debt*. In the nature of the case the securities owned in this way are usually in the form of stock, though sometimes in bonds. Louisville, Kentucky, owns (through her sinking fund) all the valuable stock of the Louisville Water Company. Frankfort, Kentucky, owns \$32,000 6 per cent. bonds of the Capital Gas and Electric Company.

564. The *real estate* owned by a city or town may be considered of two kinds, not only in its relation to the remedies of creditors in case of default, but as affecting the financial competency of the city. It is only the real property held by the city municipality in its *proprietary*, rather than in its *administrative capacity*, that properly comes under the head of productive assets. In 1904 the value of the salable property of New York City was placed at over \$686,000,000 by the United States Census Bureau. Of this amount about \$270,000,000 was productive property; and the receipts from it were \$13,369,000, or about 12 per cent. of the revenues from all sources. The major portion of this \$13,000,000 was derived from water rates, but privileges and rentals of ferries, docks, wharves, and landings returned \$3,400,000. The metropolitan subway system, built at a cost of about \$50,000,000, has added since that time to the debt-paying power of the city, both immediately and potentially.

565. In very many cities and towns the value of the municipal property is greater than the funded debt,—often several times as great. In Chicago it is four times, and in Harrisburg, Pennsylvania, twice. But the ratio of the two figures is of less importance than the character of the assets and obligations. Colorado Springs has municipal property valued at more than twice the bonded debt; but 80 per cent. of the property and 90 per cent. of the debt is of the best kind, representing waterworks; so the city is, to some intents and purposes, free from debt.

566. *Waterworks*. The amount and character of property owned by any municipal or quasi-municipal corporation, especially when in the less settled Southwest and West, and especially when the population is a matter of hundreds or scant thousands, have an important bearing upon the permanency of the settlement. Every statement of a town of this sort in Arizona, New Mexico, Nevada, etc., should be analyzed. Nothing else makes for stability and security like good waterworks, operated and owned by the municipal corporation. Undoubtedly the large majority of these throughout the country are self-supporting; and some of them earn a suffi-

cient amount, not only to pay the interest and principal of the water-debt, but of all other bonded debts besides. This is the case in Augusta, Georgia. Although the city's debt exceeds present constitutional limitations, the city is nearly as competent, financially, as if without debt. The waterworks of Port Huron, Michigan, earned for the year 1907, over all operating expenses, an amount sufficient to pay 71 per cent. of the interest on all the city's indebtedness.

567. Municipal water bonds as a class are a premier security because of the ease and certainty of their support and ultimate payment. In municipal bankruptcy they have generally fared better than the other funded obligations (e.g. Rahway, New Jersey). By city charter or otherwise it is commonly stipulated that they are not a primary charge on taxable property, but on the use of the water itself; so it usually is given to the board of Water Commissioners, or some similar body, to establish such water rates as will at all times insure to the city a sufficient income to pay the interest and to provide a fund to pay the principal of all bonds issued for water purposes.

568. It may seem at first that water loans, which do not have for maintenance and payment an express resort to the general power of taxation, must suffer in security; but this is not necessarily the case. Subject of course to tax limitations the doctrine of the implied power of taxation which is inherent in every bond enabling act that creates a direct obligation of a civil corporation, gives the holder of water bonds the same protection through the tax levy as if the bonds did not have their own special means of amortization. But when water bonds, or any other bonds, are payable from the income of designated property, and are liable, on failure of this resource, to encounter limitations of the tax power, they are better let alone. We cannot cite a failure of water bonds in illustration of this point. The interest on Selma, Alabama, Building 4s faces this predicament. The interest is met from the rentals of the market constructed with the proceeds of the bonds; but market rentals of themselves are an insufficient security; and Alabama municipals are the worst possible paper to leave to the mercies of an abridged tax power.

569. Considering the absolute necessity of an adequate water supply in thickly settled communities, and the customary financial provisions, it becomes evident that water bonds are the most desirable class of municipals, and that in municipal accounting

legislatures are justified in permitting water loans to be subtracted from gross debt, in computations of net debt.

570. The bond buyer, however, should be extremely careful in purchasing water bonds to note whether he is receiving bona fide direct municipal obligations. If memory is to be trusted, investors and even bond houses have carelessly picked up, in the course of trade, Raleigh, North Carolina, Water 6s, and Rockland, Maine, Water 5s, only to find they held public utility securities. The public attitude toward the two kinds of water loans may be shown by an instance. In 1904, Topeka, Kansas, bought the local waterworks from the Topeka Water Company for \$350,000 in 4 per cent. Water Works Purchase Bonds, and at the same time assumed the \$270,500 5 per cent. bonds of the Water Company. At this writing the difference in the selling price of these two issues is equivalent to $\frac{1}{4}$ per cent. income, annually, in favor of the direct municipal obligation.

571. **Prior Lien and Mortgage Security.** Hitherto, in this chapter, we have dealt with the security for municipal bonds as dependent, directly or indirectly, upon the power of taxation and the resources of the tax power. It is the tax power, as distinguished from earning power and mortgage lien, which mainly differentiates the security of municipal bonds from corporation bonds. And yet even municipal obligations sometimes have varying degrees of priority; and not a few are secured by mortgage.

572. The bonds of the old city of Brooklyn, under the terms of the consolidation with New York, must first be satisfied, principal and interest, from the proceeds of taxes upon Brooklyn Borough property, before the bonds issued by the Greater New York shall be provided for, from these same moneys.

573. Maine, Massachusetts, and Connecticut, and doubtless the other New England states, offer what is virtually mortgage security, as well as that furnished by the tax-power, for their municipal obligations.

"In the New England States judgments against municipalities are not enforced by mandamus, but in a mode peculiar to those states. By the common law of the New England States, derived from immemorial usage, the estate of an inhabitant of a county, town, territorial parish, or school district, is liable to be taken on execution on a judgment against the corporation."¹

The importance of this resource of execution to owners of New England municipal bonds can hardly be overestimated. It puts

¹ Dillon, *Municipal Corporations*, 4th ed., Note to § 849, p. 1027.

New England obligations quite apart, in a class by themselves, distinct and superior to all other classes of corporate loans.

574. By the New Jersey laws of 1903, school district bonds issued under the terms of the School Act are secured by lien on all the real estate and personal estates of the district issuing them.

575. We know of no circumstances other than these under which any *class* of municipal bonds enjoys what is virtually mortgage security; but special assessment bonds are not uncommonly secured by lien on the improved property, notably in Illinois, and in a few states the private property of municipal corporations, held for profit and charged with no public trusts, may be sold on execution.

576. The instances, however, in which *individual* issues of municipal bonds are secured by mortgage liens are more numerous than most people suppose. They generally arise from the express sanction of legislatures, when some productive property or plant is purchased or constructed by money raised on the bonds. It may happen that the security of simple debentures is considered insufficient. This accounts in part for the fact that irrigation district bonds are so generally a lien prior to other municipal issues subsequently imposed; and this accounts in whole for the Mobile Funding bonds of 1882, the outcome of Mobile's compromise of that year. The bonds represent a purchase money mortgage given for some wharf property. The rentals from the property are of themselves insufficient for the support and early retirement of the issue, and therefore the legislature has created a special tax of $\frac{1}{4}$ per cent. of this city's taxable property toward the same end. Some of the municipalities of Tennessee, notably Memphis, have been enabled to acquire public market houses by mortgaging the market property. Memphis has mortgaged her parks also; and her School Bonds of 1937 are secured by a mortgage covering all the real estate and buildings owned by the school board.

577. Since waterworks offer property tangible for seizure, and the most certain, stable, and generous income to support obligations created against them, it is water bonds that are most commonly secured by mortgage liens and the pledge of revenue. Many municipalities in Georgia, Alabama, and Iowa have profited by these conditions to secure their water bonds under mortgage. North Birmingham, Alabama, has both Water and Light Bonds secured by mortgage. Columbia, South Carolina, has a small issue

of mortgage water bonds and a larger issue of plain water debentures. Duluth has a large and well-known issue of Water and Light 4s which are a lien on the title of the city to the plant. And Louisville, Kentucky, has recently issued some second mortgage bonds on the Louisville Water Company.

578. The fact that these mortgage loans are municipal does not absolve them from usual foreclosure proceedings in default of interest. It will be remembered that one possible advantage in the issues of private corporations is that the principal matures on default of the interest. With unsecured municipal issues, however, action cannot be taken to secure the principal, but only the defaulted interest; and it requires the ownership of a large amount of bonds to make it worth while for any holder to proceed at law to realize upon his coupons, especially in the federal courts, which, of course, are not open to a joint action, or to an action involving less than \$2,000. In the case of defaulted *mortgage* bonds, however, there is recourse upon the principal, and the ordinary procedure of equity will govern, except that in the case of mortgage water bonds, the courts, under necessity of preserving the public welfare, may be reluctant to appoint a receiver.

579. There is another sense in which municipal bonds are sometimes associated with prior lien security, by the layman. He is, perhaps, told by the enthusiastic writers of bond circulars that since municipal bonds are "secured" by the power of taxation, and taxes come ahead of all other claims on property, therefore all the taxable property may be sold for taxes to pay the bonds,—which means that the bonds are, in effect, a first lien on all the taxable property in the community, and as such come ahead of all first mortgages on real estate, and ahead of all first mortgage bonds of any railroad or other corporation in the community.¹

580. If, in any true sense, New York City bonds "came ahead" of first mortgages on New York real estate, the bonds would not be selling on a 4.05 per cent. basis at this time when the best mortgages sell on a 3.50 basis, for the only respect in which the mortgages can be better than the bonds is the security.

581. All the taxable property of a community may *not* be sold for the bonds. A theory is worth nothing unless it is approximated in practice. Outside of New England municipal bankruptcy and default do not even *suggest* foreclosure proceedings. Apart from

¹ Quoted almost verbatim from a recent municipal bond circular of an active young Western house.

the exceptions already mentioned there is nothing behind municipal bonds analogous to the real estate mortgage.

582. Population. In treating state credit the matter of population was touched upon in the light of an indirect material asset. The figures for population generally appear on a bond offering, and they are of no inconsiderable weight with the bond buyer. Two numbers are usually given: those of the last federal or state census, and the present estimate. Since the national census is taken only once in ten years and the majority of states do not supplement it, there is real necessity, in a growing country like ours, that more approximate returns be had. A state census helps to bridge the chasm in

Rhode Island,	Florida,	Minnesota,	Kansas,
Massachusetts,	Michigan,	North Dakota,	Iowa,
New York,	Wisconsin,	South Dakota,	Wyoming.
New Jersey,			

In addition, here and there, a local census may be authorized by the state for this or that purpose.

583. It is the natural tendency to be skeptical of estimates, especially when on mushroom towns of newly-developed sections in the South and West. That estimates of population are given in round numbers does not militate against their accuracy. They are usually based on school and directory returns, and assuming that they are compiled in good faith, are accurate enough for the purpose. A study of these estimates in a large number of cases leads to the conclusion that gains in population are usually computed at no greater rate than the ascertained rate of gain for the preceding census period. On the Pacific Coast, where the craze for material growth is greatest, estimates of population are oversanguine and sometimes the census returns are even fraudulent.

584. The rule for population is very simple:—the larger the better. And the reasons thereof have been canvassed in the preceding chapter. In addition to what was stated there it may be remarked that 75,000 is approximately the turning point in a city's growth. At that size the town begins to take on metropolitan characteristics. Its places of amusement multiply, its mercantile life overflows the main thoroughfare; it is awake by night as well as by day; it becomes a shopping center; traction, lighting, and other public utilities are placed on a commercial basis; its realty valuations and the growth in valuations are more secure; habits

of thought and business and social proceeding lose their insularity, and tend toward cosmopolitanism. From the standpoint of the city's obligations, no one will question the desirability of all these changes.

585. Change in population is usually indicated on the circular by the difference between the Census and the "present estimated" figures. In the United States the change is quite generally growth, irrespective of the kind of municipality, unless the municipality has lost territory by partition, or other reapportionment of boundaries. Annexation, however, has been so prevalent of recent years, that statistics of growth may at times mislead. No informed person will be misled by New York or Chicago, but one is so used to tremendous gains in the West that this explanation for part of the gains, as in Salem, Oregon, or Los Angeles, California, is likely to be overlooked.

586. In this country a stationary or receding population is not to be met with favor. Except under extraordinary conditions, such as fire, flood, or earthquake, losses in population are in the smaller communities; and they are accompanied with other signs of distress, such as a high tax rate. Witness Merrimac, Massachusetts. The 75,000 mark of safety will generally exclude bonanza towns, one-industry towns, and pleasure resorts, which are more liable to vicissitudes than most municipalities.

587. Per capita studies in population are not very satisfactory. It has been found, strangely enough, that the strength of governments and their securities tends to vary as the per capita debt; and the same is true, for at least the larger cities of this country. Still it does not follow that strength and debt stand in any relation of cause and effect. Perhaps the relation of population to debt is best studied through the medium of wealth or real valuation. The relation of population to valuation has more significance. The real valuation per capita is greatest in wealthy residential communities,—which offer high credit. It will run from \$2,000 to \$4,000 per inhabitant. This is due in part to the comparatively high ratio of personal to real property valuations in these communities. In manufacturing cities it will run as low as \$500. As in the matter of tax rates, villages will run to greater extremes both ways.

588. Population has its qualitative, as well as its quantitative, aspects. They have been referred to in previous pages. The personal equation, individually or collectively, has a great effect on credit. Since, however, there is no unanimity of opinion and no

204 CITY AND TOWN BONDS: MUNICIPAL ASSETS

profitable appeal, except to the moral of past default and repudiation, the subject is not discussed further.

589. These then, in fine, are the material aspects of bond security the buyer must scan: the tax resource in its scope and limitations, and its basis in assessed and real valuations; the secondary resources of cash and collateral; priority of obligation in the bond, and mortgage lien; and lastly, population.

CHAPTER XVII

CITY AND TOWN BONDS; MUNICIPAL LIABILITIES

590. Municipal Debt. On the other side of the balance sheet, over against valuation, is municipal debt. The census bureau finds that in 1906 the revenues of national, state, territorial, and county governments exceeded expenditures, i.e. their net indebtedness decreased; but the indebtedness of cities, towns, and minor civil divisions increased. The increase, strange to say, meets with least hindrance in the conservative Northeast; and the two leading cities of this section, New York and Boston, are the worst offenders, at least statistically speaking, with the highest per capita net debt in the country.

591. Municipal debt is often a very complex thing;—unnecessarily so; and there is as much difference of opinion as to what constitutes debt, and net debt, among the authorizers of municipal debts, the legislatures, as in other financial matters. There is the debt proper, the *General Debt*, more or less permanent in character, about which there is less chance of disagreement, unless the legality of some issue should be in dispute. There are also, perhaps, various forms of temporary or floating debt, which should or should not be included in the debt statement, according to the statutory or judicial interpretation of debt. They are generally issued only against perfect assets, like unmatured or unpaid taxes, unpaid assessments, etc. Of this class are *Revenue Bonds*, *Temporary Loan Bonds*, *Tax Relief Bonds*, and *Deficiency Bonds*, although all kinds are often merely notes, informally drawn, and not under seal, which, to defray current expenses, have been issued in anticipation of the year's taxes, from which they will be redeemed. *Warrants*, which have the main characteristics of the bonds mentioned above, may be defined as temporary certificates of debt issued in default of cash to casual creditors of a municipality or state, payable, principal and interest, like Revenue Bonds, from outstanding taxes, excess water rents, or any other surplus revenues. They are generally included in the total debt.

592. *Floating Debt*, carried over from year to year, has no in-

herent advantages to recommend it. The excellent laws of California prohibit it in that state. To encourage the discharge of floating debt some states do not permit the funding of it until it reaches a certain sum, e.g. \$25,000. Floating debt is almost invariably included with funded debt in debt restrictions. Whatever may be the local attitude toward the interpretation of debt limitations, and net debt, a thorough-going accountancy will require the amount of floating debt. Leadville, Colorado, is an exceptional case, but for years the city has had a floating debt in excess of \$200,000, or 10 per cent. of the assessment. On the other hand, when the floating debt represents merely the year's accumulations of debits, to be discharged out of the year's revenues, it may fairly be discounted; for presumably it is offset by proportionate growth in wealth, which, in turn, has not yet been tabulated in the town's assessed valuation. New York City sometimes has outstanding in the form of revenue bonds a floating debt to the amount of many millions.

593. Under *General Debt* are likely to be found accidental items. Unfunded liabilities for contracts, and for land purchases, are important in large cities which are being extensively developed and improved. In 1908 the amount charged to these purposes in New York was \$53,000,000. Less important in number and amount are judgment debts: obligations made legal by court decisions; and unretired certificates: bonds and coupons that have matured but have not been presented for payment. Philadelphia had \$80,000 of the latter outstanding in 1907. Occasionally, but not as often as in state debts, we find loans, generally irreducible, or perpetual, that are the result of endowments or charitable bequests, as in Lowell, Massachusetts. When they are taken into the sinking funds or otherwise absorbed, the interest becomes a bookkeeping charge, and the principal is included in the General Debt; but when the funds are set apart in trust, and there is no charge on the city for maintenance, they may properly appear, like water loans, distinct from the general debt. Leominster and Medford, Massachusetts, in this way have funds included in, and Medford has funds excluded from, the general debt statement.

594. *Contingent Debt*. Trust funds that may properly be excluded from the general debt are in the last analysis always *Contingent Debt*. Contingent Debt takes many other forms as well. Woonsocket, Rhode Island, and many other municipal corporations, in New England and out, East and West, North and South, indorse

or guarantee the bonds of local railroads. Most of these obligations, especially in the West and South, are an unfortunate heritage of the seventies and eighties, when the people of this country played fast and loose with their corporate credit. These indorsed bonds, however, are to be distinguished from railroad aid bonds. Columbia, South Carolina, guarantees the interest, but not the principal, on \$200,000 Canal bonds. Many cities guarantee the water bonds of water companies they have purchased. Austin, Minnesota, guarantees and pays the interest on moneys loaned the Southern Minnesota Normal College. As to whether special assessment bonds are a contingent obligation of a corporate body depends in part on the court having jurisdiction. If, as in Kansas, an assessment bondholder has recourse on the municipality as a whole, in default of the special tax on the property immediately benefited, then the bonds are a contingent liability. At least in cities of the first class, in Kansas, they are direct obligations. Otherwise, and more generally, as in Indiana under the Barrett Law, they are not a contingent liability.

595. The laws and practices of the several states vary so greatly that it is impossible to lay down any fast rule as to what forms of Contingent Debt shall be accredited to General Debt account. This much at least may be said: when the burden of the support and discharge of the debt falls directly on the municipality as a whole, a proper accounting will attribute the fund to General Debt; when it falls upon the municipality only indirectly, by default, or when it falls directly upon only a part, the item is outside of the General Debt, but embraced in the Total or Gross Debt, when the General and Total Debts are distinguished.

596. The Real Debt of Cities and Towns. The distinction between the nominal debt of the political division called county and the real debt which has to be borne by the county community was discussed at length in the preceding chapter. This distinction is not so important for cities, towns, and villages as a class. But nevertheless there are hundreds, if not thousands, of municipal corporations that exhibit similarly misleading debt statements.

Many municipalities have taxing districts (such as form the subject of a succeeding chapter) that are actually or practically co-extensive with the cities or towns. The two commonest forms are school districts, and fire or water districts. These quasi-municipal corporations often issue their loans in such amount as to double the burden of funded debt that has to be supported by

the taxpayers. The burden will appear in the two tax rates, which are based on actual property values; but it will not appear in the debt statement of the city or town alone. Therefore it behooves the bond buyer, who seeks actual conditions, to learn whether taxing districts, by a separate accounting, are concealing the liabilities that are a charge upon the community in question. Of course the bond issues of the minor quasi-corporation have no bearing upon the debt limitation of the major corporation, or upon questions of legality that issue therefrom.

597. Chicago furnishes the illustration *par excellence* of a city administered and financed by districts, or subsidiary corporations, each with its separate funded loans. But by recent constitutional amendment, the legal net debt of Chicago is interpreted as comprising, not only the present city debt proper, but the debt of all municipal corporations lying wholly in the city, and the city's portion of the debt of the county and sanitary district. This is the only important legislative recognition that comes to mind, of the true nature of municipal debt.

598. There is one constitutional recognition, however, that is even more satisfactory, since it applies the same principle to all municipalities in the state.¹ The debt limit in South Carolina is 8 per cent. for every political subdivision. But the debts and tax burdens are not allowed to overlap without stint, for "wherever there shall be several political divisions, or municipal corporations covering or extending over the territory or portions thereof, possessing a power to levy a tax or contract a debt, then each of such political divisions, or municipal corporations shall so exercise its power to increase its debt under the foregoing 8 per cent. limitation that the aggregate debt over and upon any territory of this state shall never exceed 15 per cent. of the value of all taxable property in such territory as valued for taxation by the state. Provided that nothing herein shall prevent the issue of bonds for the purpose of paying or refunding any valid municipal debt heretofore contracted in excess of 8 per cent."

599. There is adequate recognition of true debt in the admirable rules governing the investment of trust funds of Baltimore. These funds may be invested in the bonds of municipalities the net indebtedness of which "*together with the indebtedness of any District, or other Municipal corporation, or subdivision, except a*

¹ The principle is recognized with less definiteness in the constitution of South Dakota.

*County*¹ which is wholly or in part included within the limits of said City does not exceed 7 per cent. of such valuation," etc.

600. New York State also has awakened to the danger of debt duplication and by recent constitutional amendment "any debt hereafter incurred by any portion or part of a city, if there shall be any such debt, shall be included in ascertaining the power of the city to become otherwise indebted."

601. **Net Debt.** The gross debt of a city, in itself considered, is of very little significance, any more than "accounts payable" in industrial corporations, irrespective of "accounts receivable." What we wish to know of a municipality is its *Real Net Debt* and its *Legal Net Debt*. The *Real Net Debt* is the residue of obligations which are not balanced by assets in kind,—assets that make the obligations self-sustaining and thereby prevent them from being an actual charge on the municipality. The *Legal Net Debt*, in many states, is that which the legislatures declare, and the courts decide, is the debt within the meaning of the provisions regulating the debts of municipalities.

602. The *Legal Debt*, in many states, is based in a crude way on the *Real Net Debt*. Since, however, there may be difference of opinion as to what obligations are assuredly self-supporting, we find different interpretations of *Legal Net Debt*, or "Debt." Thus the Supreme Court of Pennsylvania holds that the real debt of a municipality in that state (which shall be limited to 7 per cent. of the assessment) is the authorized debt less the amount of municipal certificates purchased and uncanceled in the sinking fund. But even this doctrine that municipal securities alive in the sinking fund should be subtracted is not accepted in all states.

603. It will be seen that cities and towns in Pennsylvania are not permitted to recognize the self-supporting nature of water bonds, by subtracting the amount of them from the authorized debt in determining the limit of indebtedness. The same is true in Rhode Island, Montana, California, and not a few other states. Formerly the constitution of Missouri was equally conservative, but by the amendments of 1902 the two leading cities, St. Louis and Kansas City, are permitted to exempt the water debt. Furthermore cities of from 2,000 to 30,000 inhabitants may by vote exceed the debt limit with issues of water and light bonds to the amount of 5 per cent. of the taxable property. This is equivalent to a re-

¹ See §§ 509, 510.

stricted permission to ignore these loans in computing the next debt. The following also are among those states in which, by constitution, statute, or charter, some or all municipalities may, in computing their net debt, omit water loans, wholly or to a percentage: Alabama, Colorado, Massachusetts, Montana, Missouri, New Hampshire, New York, North and South Dakota, South Carolina, Utah, Washington, and Wyoming. New York City may except water loans incurred since January 1, 1904. The municipalities in some of these states may in like manner except sewerage and lighting obligations when incurred for plants municipally owned and operated. Municipal corporations in Illinois that have reached their debt limit may not issue water bonds to exceed that limit; but for the improvement or extension of waterworks, they may issue certificates payable out of the earnings of the plants.

604. The Revised Statutes of Massachusetts fairly represent these states mentioned. Net indebtedness in Massachusetts is defined as the indebtedness of a county, city, town, or district, omitting debt created for supplying the inhabitants with water, and other debts exempted from the operation of the law limiting their indebtedness, and deducting the amount of the sinking funds available for the payment of *the indebtedness included*. The phrase italicized calls attention to the fact that in subtracting the water debt, or any other legally excludable debt, it is not the gross, but the net debt which is subtracted. In other words, care should be taken that the sinking funds of the excluded debts should not be twice deducted.

605. As previously stated, the various debits of a transient nature are frequently excluded in ascertaining net debt. Of such, in the new constitution of Alabama, are temporary loans, to be paid within one year, made in anticipation of the collection of taxes, and not exceeding one-fourth of the annual revenues. Maine and some other states do not limit the amount of temporary loans which may be excluded. In line with the common rule the Supreme Court of Georgia holds that unaccrued interest is not to be included. Almost invariably municipal corporations, as in Montana, may incur new indebtedness to refund existing indebtedness, if the total after refunding will be within the constitutional limitation, even though both taken together would exceed it.

606. In the rare cases in which bonded debt only is limited, and there is no restriction upon floating debt, the bondholders cannot, by mandamus or injunction, restrain the creation of floating debt,

and, unless taxes have been specifically pledged for the payment of the bonds, or unless the legislature has made them a first charge, the holders of floating indebtedness have an equal right with the holders of bonds.

The holders of floating indebtedness are general creditors, who may press demands for payment with a legal suit and become judgment creditors. The bondholder in the absence of default on his paper, and prior to its maturity, has no ground for attempting the collection of his claim against the municipality. It is quite conceivable, in a school district for instance, that the claims of judgment creditors might accumulate to such an extent as to endanger the district's solvency and vitiate the interest of its bondholders. Hence the necessity, for safety, of having the floating debt construed within the debt limits.

607. It is patent from these judicial and legislative interpretations offered in illustration that the legal Net Debt of a municipality, upon which its debt limitation is based, is often a thing quite apart from the Real Net Debt. On the one hand the municipality may be permitted to exclude from the net debt issues that are *not* self-supporting, and, on the other hand, it may be enjoined from excluding issues that *are* self-supporting.

608. The Supreme Court of Illinois has decided that the World's Fair bonds shall not be computed as part of the net debt. The amount of these bonds is \$4,293,000, or six-sevenths of the amount of the water debt, or of the amount of the city's sinking funds. The sinking fund bonds and water debt are, of course, revenue-producing; but the World's Fair bonds are dead weight, and are not held in as high esteem and do not sell as well as Chicago's other direct obligations. This is a gross perversion of municipal accounting, whatever justification it may have on grounds of expediency. St. Louis has World's Fair bonds and water bonds in practically the same amounts, respectively, as Chicago; but the Fair bonds of St. Louis are included in the net debt.

609. The best illustrations of self-supporting issues that may not be deducted from the gross debt in finding the net come from states like Pennsylvania, in which water debt may not be subtracted. It is to be observed, however, that the usual bond circular takes little heed of either the real or the legal net debt, but makes it a practice to take the general or the total debt, subtract from it the gross water debt, and probably the sinking funds,

212 CITY AND TOWN BONDS: MUNICIPAL LIABILITIES

and call the remainder the net debt. The justification for this is that further refinement of municipal accountancy would be lost on the average bond buyer. No such liberties would be openly tolerated in presenting the financial statements of private corporations.

610. Portland, Maine, offers a good illustration of a business-like system of municipal accounting, so far as it determines net debt. The total debt of Portland includes the usual city loans, bonds matured but not presented and retired, and assumed bonds of the annexed city of Deering. (St. Louis *excludes* the bonds of St. Louis County, merged.) From this total Portland deducts, to find net debt, the conservatively estimated market value of her available assets, consisting of cash, gas company stock, and the stock of the Portland and Ogdensburg Railroad, guaranteed under lease by the Maine Central.

611. A form of accounting such as that in Portland, under which the legal and the real net debt approximate each other, is not possible under the laws of many states, for it is liable to abuse. And yet it makes us realize how we may mislead when we attempt to compare the debts of cities without comparing also the revenues of the properties for which the debts were incurred; or when, without making proper allowances, we attempt to compare the past debt of a city, which represents as a rule expenditures which make no direct pecuniary return, with the present debt, which in part may represent highly productive assets, as in New York.

612. New York City has recently sought and obtained from the legislature an amendment to the constitution providing for the exclusion from its debt limit of obligations hereafter incurred for public improvements that yield to the city current net revenue in excess of the interest and sinking funds on such obligations; also for the exclusion from the debt limit of any obligation heretofore incurred by the city for any rapid transit or dock investments to the extent to which their net revenues shall meet the interest and sinking fund thereof. This course commends itself as more rational than that of raising the debt limit to 14 per cent., as suggested, because, although the net result in dollars and cents may be the same, it places all kinds of "self-supporting" debt on a common basis of inventory, and is another step in the direction of more uniform municipal accounting. The danger from a spread of the custom is that cities will receive legislative permission to

exclude from the net debt obligations that eventually will not prove self-sustaining.

613. Sinking Funds. Sinking Funds, even more commonly than water loans, are excepted from the gross debt in finding the net. To be sure it sometimes happens that the courts will hold, as in Montana, that "indebtedness" as used in the section of the state constitution limiting debts, means what a city owes, "irrespective of demands it might hold against others," but the interpretation that admits of this subtraction of sinking funds is fairly general. New York State in 1886 was the scene of the battle royal over sinking fund accounting in its relation to net debt; and the case was won in the Court of Appeals only after a year's struggle. One of the results was the creation in 1903, in New York City, of issues of General Fund bonds to absorb the surplus revenues arising from the crude sinking fund of the old city. Since these bonds, of which over \$40,000,000 are now outstanding, are destined only for the sinking fund, the interest from them helps to keep down the tax rate. In 1906 New York bought nearly \$12,000,000 of its own issues for its sinking funds. To include, therefore, the General Fund bonds in the city debt would be the height of absurdity.

614. If the sinking fund method of meeting debt is to be used at all, it is best to protect each bond issue separately, by creating a special sinking fund for it from the proceeds of a special bond tax voted before or at the time of the issue. The list of states requiring this method has been given in § 534. If the fund is a general fund it is probably established by act of legislature "by raising annually a sum which will produce an amount equal to the sum of the principal and interest of said bonds at their maturity." As operated in Massachusetts the sinking fund is not designed to meet the interest. But since it is notorious that sinking funds, municipal and corporation, are appropriated for other than the uses for which they are instituted, the statute should explicitly state they are "to be used for no other purpose than the payment of such debt."

615. When a municipality has outstanding a considerable number and variety of loans, it is the custom to purchase its own securities to be kept alive in the sinking fund. Jersey City invests in nothing but its own bonds. Many another city likewise. It is evident that this course does nothing more than reduce the real debt of the municipality. It is fairly comparable to the course of a man who borrows on his note and later reduces his indebtedness

by buying back his note, or part of it, and owing himself the sum bought back, and paying himself interest on the sum until the maturity date. There are places of refuge and quiet for men who would seriously pursue such a practice. But cities do commonly, and municipal sinking funds are not yet a byword and a jest.

"If the Sinking Fund is invested in the debtor's own bonds or obligations, its existence is *not of the least advantage to the creditor*. It gives him no additional security,—legal, equitable, or honorary. It is a worthless device so far as he is concerned."¹

616. Moreover a device, like that in New York, by which a city is permitted to sell its own bonds direct to the sinking fund, is not only worthless, but pernicious; for it permits "a city to market its bonds to itself, when the credit of the city or the state of the money market might be such that the bonds would not sell outside." It is understood, of course, that the plan may be pernicious, and yet the least of several possible evils under existing circumstances. This is the case in the New York General Fund bond issues. On the general grounds Minneapolis was refused permission to sell its bonds to the Board of Sinking Fund Commissioners, although no statute forbade it, the Chief Justice of Minnesota contending that "such a purpose is so radically inconsistent with a sinking fund, and so destructive of the purposes to be conserved by its maintenance, that it must be held that the prohibition is implied."

617. For a municipality to sell its bonds to the sinking fund is the same thing as for the municipality to borrow money from the sinking fund. It was this violation of fundamental principles that brought Pitt's famous English fund to grief.

618. If the object of a sinking fund is to lay aside money year by year toward the payment of a debt at some future time, the money in the fund is most safely disposed for accumulation until that time, and the creditors are best secured, by dispersing it in the purchase of various strong securities which to the least possible extent are subject to the control of the debtor corporation. With this in view the funds of Providence, Rhode Island, are convertible into bonds of the Federal Government, and of the state

¹ *The Metropolitan Debts of Boston and Vicinity*, Chandler. (Extracted from *The Sinking Fund*, Browne.) Other quoted paragraphs under the topic of "Sinking Funds" are from Chandler, unless otherwise attributed.

governments of New England, and of the cities of Rhode Island, and of 16 other cities of very high credit. But "the bonds of each of said cities shall be a lawful investment only so long as its indebtedness, less its water debt and sinking funds, shall not exceed 7 per cent. of its assessed valuation."

"The creditors' legal rights are very little, if at all, strengthened by a sinking fund invested in outside securities, so long as they remain under the control of the debtor himself, or within reach of his general creditors."¹

You cannot hold a debtor to a contract made with himself.

619. How misplaced is public confidence in the efficacy of sinking funds (which are almost invariably in the control of the debtor), may be evinced by a survey of financial history. "The suspension of a sinking fund is at times deliberate, and is essential in sound finance if money must be borrowed to maintain it; for to borrow to keep up the Sinking Fund is a purely fictitious operation, which really adds to the debt it in no wise reduces." And so we find that England, after the War with Egypt, and after the Transvaal War, and the United States, during and for some years after the Civil War, suspended payments. Indiana, in 1905, by act of legislature, suspended taxes raised for sinking funds till 1908. Pennsylvania, by the constitution of 1873, makes explicit exception to the integrity of her sinking fund ". . . and *unless* in case of war, invasion, or insurrection, no part of the said sinking fund shall be used or applied otherwise than in the extinguishment of the public debt."

620. Yet, after all is said, because of the fact that sinking funds directly or indirectly reduce the amount of obligations in the hands of a city's creditors, it is right that they should ordinarily be deducted from the gross debt in computing the net.

621. **Sinking Funds Versus Serial Repayment.** If not sinking funds, what then? The alternative is *Serial Repayment*.

In 1872 West Virginia accepted a new constitution requiring that "the payment of any liability, other than that for the ordinary expenses of the State, shall be *equally distributed* over a period of at least twenty years." Ten years later, Massachusetts, by statute, extended to her municipalities the option of serial payment. "A city or town, instead of establishing a sinking fund, may vote to provide for the payment of any debt by such annual

¹ *The Sinking Fund*, Browne.

proportionate payments as will extinguish the same at maturity." About twenty-five of the leading cities and towns have availed themselves of the privilege; and the demonstrable benefits that have accrued have been the means of influencing many municipalities in other parts of the country to adopt the same policy. A large part of the obligations of Elmira, New York, are serial in maturity, and the city is thereby enabled to do away with sinking funds. Salem, Massachusetts, closed her sinking fund account in 1908, with rejoicing.

622. Sinking funds do not amortize a debt; they merely convert it, or offset it. The only true amortization is extinction. The only way to sink a debt is to pay it. The simple, rational, and economic method of extinguishing a debt is to pay it in approximately equal periodic instalments. This is the serial bond method.

623. Sinking funds are not only liable to misappropriation, unwise investment, suspension, and the like, but *they are costly*. Their average earnings are little, if any, over 3 per cent. Serial bonds require a minimum of expense and produce a maximum of security. "When a bond issue is serial the investment grows safer as it grows older."

624. The following two tables, compiled by Mr. Alfred D. Chandler,¹ show the difference in actual *interest* paid out, and in *cost*, of a bond issue of \$1,000,000, at different interest rates and durations.

The first table works out the difference in cost of a loan of \$1,000,000 for 20 years, bearing the interest rate of 4 per cent., on the assumption that the sinking fund can earn: (a) 3 per cent.; (b) $3\frac{1}{2}$ per cent.; (c) 4 per cent.

**\$1,000,000 AT 4% FOR 20 YEARS. COMPARISON BETWEEN SINKING
FUND AND SERIAL BOND METHODS**

By the Sinking Fund method the interest at 4% is . . .	\$800,000
“ Serial Bond “ “ “ . . .	420,000

Difference in *interest* in favor of Serial Bonds . . . \$380,000

¹ *The Metropolitan Debts of Boston and Vicinity. Sinking Fund and Serial Bond Methods Compared.* Printed by the Town of Brookline, Mass., 1905. Many other interesting tables are to be found there.

CITY AND TOWN BONDS: MUNICIPAL LIABILITIES 217

(a)

\$1,000,000 Sinking Fund requirements for 20 years, on a 3% basis, the decimal for \$1 being .038654		\$734,426
\$1,000,000 at 4% for 20 years, interest . .		800,000
		<hr/>
Cost of loan, Sinking Fund method . .		\$1,534,426
\$1,000,000 20 year Serial Bond, 1-20, or \$50,000, payable yearly		\$1,000,000
Interest (annually diminishing) total at 4% . .		420,000
		<hr/>
Cost of loan, Serial Bond method . . .		1,420,000
Difference in cost in favor of Serial Bond method . .		\$114,426

(b)

\$1,000,000 Sinking Fund requirements for 20 years, on a 3½% basis, the decimal for \$1 being .036657		\$696,483
\$1,000,000 at 4% for 20 years, interest . .		800,000
		<hr/>
Cost of loan, Sinking Fund method . .		\$1,496,483
" " Serial Bond " . .		1,420,000
		<hr/>
Difference in cost in favor of Serial Bond method . .		\$ 76,483

(c)

\$1,000,000 Sinking Fund requirements for 20 years, on a 4% basis, the decimal for \$1 being .034749		\$660,231
\$1,000,000 at 4% for 20 years, interest . .		800,000
		<hr/>
Cost of loan, Sinking Fund method . .		\$1,460,231
" " Serial Bond " . .		1,420,000
		<hr/>
Difference in cost in favor of Serial Bond method . .		\$ 40,231

The second table shows, without detail of operations, the differ-

PRINCIPAL LIABILITIES

Loan at both 3 and 4 per

CENTS

		\$1,000,000 at 4 per cent.		
		DIFFERENCE IN INTEREST IN FAVOR OF SERIAL BONDS		
	30 Years	30 Years	40 Years	50 Years
\$735,000		\$380,000	\$780,000	\$980,000
		DIFFERENCE IN COST IN FAVOR OF SERIAL BONDS		
	50 Years†	30 Years*	40 Years†	50 Years†
\$199	\$178,805	\$114,436	\$304,199	\$418,305
\$1,791	111,908	76,483	246,791	356,908
	58,057	40,281	194,765	303,057

† Decimal for 30 years, and 30 payments.
* 40 years, and 49 payments.

were to equal the full number of years,
over the above in the saving in favor of
each increase being larger with the Bonds

and the number of payments made each
years, there will still be a large gain in

it costs a municipality \$418,305 more
year, 4 per cent loan, to be acquitted at
sinking fund accumulations, provided the
annual 3 per cent., than it costs to pay off
with interest, each year. It should be
that a "straight" 50-year loan would bring
than a serial loan, but the difference would
of \$418,305. Bearing this sum in mind, and
New York City has very many millions of 50-
one can readily appreciate the tremendous
which the sinking fund policy occasions. On
New York had \$249,557,655 in her various sink-

625. The Redemption Privilege. Bonds that mature serially are almost never refunding, for the method of amortization hardly admits of it; and refunding defeats the very purpose of serial retirement. Indeed, refunding is often denied by law. But still something is gained by a municipality that does not mature its bonds serially, if the issues are made subject to call; and it is significant that very many cities which are given in part to serial amortization, have all their straight loans callable.

626. Bond issues may be callable either in whole or in part; at the time of issuance or at a given date; or on or after a given date; or they may be callable in a certain amount each year. Almost all of the many loans of La Crosse, Wisconsin, are callable any time during the ten years immediately prior to their maturity; of Annapolis, Maryland, any time after their fifth year of life. Warren, Pennsylvania, has loans callable in blocks of \$11,000 every 5 years. Pittsburg, in the same state, has no end of variations on the theme of redemption.

627. Unlike corporation bonds, municipals are usually redeemable at par, if at all. The privilege of redemption makes it possible for a city, when in funds, to cancel a portion of its debt with the surplusage, and avoid the evils of a large sinking fund. Much the same result would be attained by buying the bonds in the open market, as sinking funds often do, but since municipal bonds are seldom permitted by law to be issued at a price below par, it is not always possible for the city to buy them back below par; and the sinking fund usually has to pay slightly more than the market price if it buys openly.

628. Then again the privilege of recall makes it possible for a municipality to avail itself, without loss, of any general lowering of interest rates, or of any lowering in its own particular case, due to gain in its credit. One still sees many irredeemable issues of municipal 6s and 7s that were put out in the seventies and eighties. Most of these long since would have been retired or refunded, if they had been callable at par. Any experience of this sort is likely to be reflected in the policy of a community. If one issue of a city is callable we may expect to find most of them callable,—at least most recent issues. Thus in Shenandoah and Shenandoah School District, Pennsylvania. And if the practice gains any headway in one section, it is likely to become the settled policy of the state. Almost all of the municipal bonds of Wyoming are subject to call, and the majority of the remainder are serial.

220 CITY AND TOWN BONDS: MUNICIPAL LIABILITIES

The privilege of redemption plays no part in the net debt of municipalities, but as a topic concomitant with sinking funds and serial repayment it is logically treated here.

629. Debt Limitations and Restrictions. Having, now, some working information on appraised, taxable wealth, and of legally defined debt, we are prepared to consider each in its relation to the other; for their relation, expressed in percentage as a ratio, is the *usual* measure of the debt permitted by law, and introduces us presently to the study of legality.

First, however, let it be said that certain states have almost no *general* limitation to the amount of debt that they may incur. They are

Arkansas,	Idaho, ¹	Nebraska,	Tennessee,
Connecticut,	Maryland,	Nevada,	Texas,
Delaware,	Michigan,	New Jersey,	Virginia.
Florida,	Minnesota,	North Carolina,	

The only important limitation in Minnesota and Nebraska is that all municipalities shall be restricted in respect to railroad aid to from 5 to 15 per cent. of the assessment. New York State puts a limitation upon the debts of counties and cities, but none upon the minor civil divisions.

630. The *source of the debt limitation* varies. The territories, of course, have been subject to the will of Congress. For states the constitutional limitation has been the most desirable, for that is least liable to abrogation. Also if the constitution is not sufficiently restrictive it may be supplemented by legislation. We find constitutional limitations in Kentucky, Louisiana, Montana, New York (for counties and cities), Oklahoma, Montana, South Carolina, South Dakota, Utah, Washington, West Virginia, Wisconsin, etc.

631. Yet more often than not the power of debt limitations and of other restrictions has been delegated, specifically or otherwise, to the legislatures. By this arrangement legislative limitation is more self-corrective and discretionary, but it is liable to abuse. Some of the New England state legislatures have been free in their employment of the discretionary power, particularly in the passage of special enabling acts. When custom sanctions this the debt limit is of very little value. North Adams, Massachusetts,

¹ This does not take into account very special legislative or charter limits, e.g. in Boise City, 15 per cent.

has more loans outside than inside the limit, entirely apart from the water bonds. New Bedford has a debt of \$3,939,000 outside. In 1903 the legislature of New Hampshire suspended the Municipal Bond Act of 1895 to permit Portsmouth to build a high school.

632. The debt-limiting power has been delegated in whole or in part to the legislatures of Kansas, Maryland, Massachusetts, New York, Michigan, Nebraska, New Hampshire, Ohio, Oregon, and other states. In Maryland and Ohio the power has not been generally exercised.

633. Charter limitation, being freely amenable to legislation, is open to the same sort of objection as legislative limitation, if not to the same degree. The number of municipal corporations in which the principal limitation is by charter is not relatively large. It is the only sort of limitation, however, in North Carolina and Tennessee. When the charter antecedes the present constitution or the most recent municipal bond act, it is generally of greater latitude, as in Manchester, Virginia; but sometimes the opposite is the case, as in Danville, and Lynchburg, Virginia.

634. The *Basis of the Debt Limitation* is almost always a percentage of the assessed valuation of all the taxable property. In New York State and in Virginia it is the assessed valuation of real estate only. In Chicago and in all the municipalities of Iowa it is a percentage of the full or actual valuation, irrespective of the assessment. But these are the rare exceptions to the general rule.

635. The *Degree of Limitation* may be fixed (numerical), or, more commonly, elastic (percentile). Oregon is the only state which limits its municipalities as a whole to fixed amounts. Counties in Oregon may not contract debts in excess of \$5,000; cities and towns, in excess of \$2,500, without legislative sanction; school districts of over 75,000 population, in excess of \$100,000. Smaller school districts have a 5 per cent. limit. Omaha, Nebraska, formerly was limited (with exceptions of certain issues) to \$2,750,000, but now to 5 per cent. of the assessment. Danville, Virginia, is limited to \$1,460,000.

636. It is obvious that the better form is the common elastic limitation by which the net debt may not be incurred,—at least without consent of the legislature,—to exceed a certain percentage of the assessment. There is one drawback, however, to the elastic form, in its relation to legality. Although in a comparatively new country like ours the tendency of the assessment (and therefore of the debt-capacity) to increase is fairly constant, yet at times, as

222 CITY AND TOWN BONDS: MUNICIPAL LIABILITIES

from a local catastrophe, or in a period of serious depression, such as that of the early nineties, there may be a depletion of the taxable resources which, if not noted by the municipal creditor, may leave him with a new issue of illegal obligations on his hands. Helena, Montana, floated town warrants under these circumstances in 1893, and although the city acted in perfectly good faith, no way has yet been found to wipe out the debt incurred at that time.

637. In reading the subjoined list of states with their debt limitations, from whatever source, it must be remembered that exceptions to the limits are very numerous; that the limit is often raised for special issues, and special kinds of issues; that it is rated on different bases of valuation; that it is often subject to suspension at the will of the legislatures and on the vote of the people. For instance, although the debt limit in Oklahoma is 5 per cent., the constitution excepts, and does not limit at all, the amount of debt which may be created for the purchase or construction of public utilities. When two percentages are given they indicate the ordinary minimum and maximum limits for various kinds of municipalities, or perhaps for various kinds of issues, or else the first number represents the nominal limits and the second, the limit including issues authorized by popular vote. Therefore the table is almost useless for purposes of comparison:

	Per cent.		Per cent.		Per cent.
Alabama	3½-8	Maine	5	Pennsylvania	7
California	15	Massachusetts ..	2½-5	Rhode Island	3
Colorado (counties)	¾	Mississippi	7-15	South Carolina....	8
Georgia	7	Missouri	5	South Dakota....	5-23
Illinois	5	Montana	3-5	Utah	2-8
Indiana	2	New Hampshire...	5	Vermont	5-10
Iowa	1½-5	New York (cities and counties)...	10	Washington ...	1½-10
Kansas	5-10	North Dakota	5-8	West Virginia....	2½
Kentucky	2-10	Ohio	4-8	Wisconsin	5
Louisiana	10	Oklahoma	5	Wyoming	2-6

Also Oregon \$2,500-\$5,000.

638. Debt creation in the territories was subject in all respects to regulation by Congress. The former limitation in Indian Territory is worthy of note, not only for its uniqueness, but because it had the advantages of a tax restriction, as well as a debt restriction, with none of the disadvantages. Cities and towns in

that territory of over 2,000 population might become bonded for sewers, waterworks, and schools in a sum not to exceed "an amount, the interest on which, at 5 per cent., would be liquidated by a tax of 5 mills upon the dollar of the valuation of the taxable property."

639. It is curious that amid all the vagaries of municipal debt restrictions no state has recognized in the limitations it imposes, the dependence of the debt-paying ability on the margin of income over current municipal expenses. In the Province of Quebec, however, we find the principle is recognized, for municipalities there may issue bonds and provide for payment out of the general funds only until such time as the total amount required in any one year for interest and sinking fund, or interest and instalment of principal, shall exceed 50 per cent. of the total annual revenue. When this point is reached debentures may be issued only upon the authority of the Lieutenant Governor in Council.

640. It would not be possible to mention within reasonable limits of space, all the hindrances and bounds which are placed about the incurrence of debt. Most states expressly prohibit their municipalities from appropriating moneys for assuming the debts of, or becoming shareholders in, any private corporation, company, or person; although an exception often is made, especially in New England, in favor of railroad corporations, on the ground of their public nature and function. The loan of credit in any guise is also prohibited in the great majority of states.

641. *The Referendum.* At least twelve states require that prior to the incurrence of any new funded debt, under the general laws of the state, at least any debt in excess of the year's resources, the measure shall be submitted to the vote of the qualified electors of the issuing corporation. These states are

Alabama,	Idaho,	Oklahoma,	Texas,
California,	Kentucky,	South Carolina,	Utah,
Colorado,	Missouri,	South Dakota,	West Virginia.

642. Seven states require the referendum (or the petition, which is much the same thing), for debts incurred in excess of a certain percentage of the assessed valuation. They are

Georgia	above	1-5	per cent.	Michigan	above	2	per cent.
Iowa	"	1	1-4	"	"	5	"
Washington	"	1	1-2	"	"	18	"
Pennsylvania	"	2	"	"	"	"	"

224 CITY AND TOWN BONDS: MUNICIPAL LIABILITIES

In addition to these, New Hampshire requires the referendum for all political divisions except cities.

643. A majority vote is by no means sufficient to sanction bond issues, in some states. About as many require a two-thirds vote as require the majority vote. Oklahoma, Washington, and West Virginia require a three-fifths vote. Colorado and Utah limit the voting power to those who, in the year preceding the election, paid a property tax. But Iowa requires only 200 signatures to a petition, in cities of 10,000 population or over.

644. The submission of every proposed bond issue to popular vote is the best warranty of good faith. By what the people themselves have willed they are more likely to abide. And there will be less unwisdom in the accumulation of debts when they are subject to the publicity of a municipal election.

645. Here and there we come across laws requiring certain municipalities, or loans of certain kinds, or loans issued under certain conditions, to receive special legislative sanction before flotation of obligations. In the eastern provinces of Canada, New Brunswick, Nova Scotia, and Prince Edward Island, a municipality must get a special act of legislature every time it makes a new bond issue. And in our own country the same thing is true for all the municipalities of Maryland.

646. *Evasion of the Debt Limit.* In closing this topic it should be mentioned that several devices have been employed to evade the restrictions placed about the power to contract debts. Notable among these, and usually successful (though not in Illinois or Indiana), is the plan to provide municipal waterworks by purchasing a plant privately built,—subject to the water bonds outstanding, which, as they are not a direct municipal obligation, are not a part of the municipal debt. Another plan is to issue certificates of indebtedness redeemable from the proceeds of taxes voted at the time, or prior to, the issuance of the certificates, the taxes to be collectable, annually, over a series of years. All loans which are the outcome of such dubious methods should be avoided. They form but an infinitesimal portion of all.

CHAPTER XVIII

CITY AND TOWN BONDS: VALIDITY AND GOOD FAITH

647. Validity. With matters of validity we come to the second of the three main topics under which the security for municipal loans is treated. It may be well to recall the order: Financial Competency, Validity, and Good Faith.

648. It has been said, with a certain element of truth, that municipal bonds are good if legal. Whether or not this sums up the general impression of municipals, it would be hard to say. The emphasis which the statement places upon legality is not without occasion. Yet legality is not the broad term for the thing signified;—rather validity: for a bond might be issued which, though not in complete accordance with law, would still be a valid obligation.

649. The question of validity almost never arises for federal government or private corporation loans. But there are so many and such various circumstances under which municipal bonds are issued, the laws are so obscure, diverse, and in many cases untested, the municipal corporations so various in character, their legislative, executive, and advisory officers so often woefully inefficient,¹ that opportunities for loss to investors would be innumerable, were the purchasing bond houses, through their experienced attorneys, not so scrupulous in all legal details.

650. But again let us repeat that since the usual, and generally the only, fiscal security for municipal bonds is the general power of taxation, our first duty is with this tax power, its scope and limitations, and its relation both to the wealth it levies upon, and the debts it is to sustain and discharge. Validity, in general, is secondary.

"The Supreme Court of the United States . . . has upheld the validity of bonds which have been issued in violation of all requirements of law; bonds

¹ A perusal of some of the author's correspondence with municipal officers would be a profitable and sobering discipline to advocates of the municipal ownership and operation of our public utilities.

that have been issued in excess of the constitutional limit of indebtedness; bonds that have been issued in violation of other constitutional requirements. But that court is powerless when it reaches the question of remedies, when the statutes of the state fail to provide a sufficient tax levy, or when they expressly restrict the levy to such an amount as will not be sufficient to pay the validated bonds and interest. One cannot read the municipal bond cases in the United States Supreme Court reports of the seventies and eighties without being impressed with the belief that the legality of bonds is of less importance than the power of taxation behind them."

651. It is fortunate indeed, not only for investors in American municipals, but for our cities, that courts, both state and federal, but particularly federal, have taken the stand that repudiation shall not be generally permissible on grounds of mere technicality; for otherwise the status of municipal credit would not be on its present high plane.

652. A democratic form of government must necessarily be deficient in some excellences that pertain to the rule of an aristocracy of inheritance. Among them is the peculiar training for petty government that a system of rotation in office achieves. Municipal officers, raised to position without special fitness, and with tenure subject to the vicissitudes of politics, are not the best sort of persons in whose hands to leave the power to borrow large sums of money in exact conformity with a complex body of laws.

653. A record of sales, during 1907, of the more important communities in the United States shows that of a total of about \$200,000,000 of municipal and state bonds issued, some \$4,000,000, or 2 per cent., divided among 65 municipal issues, were finally declined by those who had bought them subject to the approval of their attorneys; and usually, but not always, declined on the ground that the issue was invalid because of some lack of compliance with minor requirements of law. This \$4,000,000, of course, does not take into account a very much larger amount of issues which the attorney of the purchaser found insufficiently protected by law, but which by further acts at his suggestion the issuing community was able completely to validate without formal resale. There is not the slightest suspicion of bad faith to be attached to these communities that had issues rejected; but there is a very significant moral to be drawn from the inference of gross carelessness.

654. *The Causes of Illegality.* The causes of illegality are legion; and it would not be practicable, or possible, to mention them all here. In their minutiae, they concern only the courts, the municipality, and the bond attorney. Analyzed, however, they re-

solve themselves into four groups: they have to do with, 1, the authority of issue; 2, the purpose of issue; 3, the process of issue; 4, the violation of debt and tax restrictions.

655. The ultimate *authority to issue* municipal bonds is in constitution or statutes; really it resides in the legislature. Constitutional provisions are very accessible, but the statutes have to be studied very thoroughly throughout if one seeks information as to legality at first hand, for one never can tell in what obscure place may be hidden an act that may have effect. Moreover, the statutes are sometimes susceptible of misinterpretation. So in the matter of the authority of issue, for illustration, prominent firms of bond attorneys are at variance as to the necessity of specific legislative sanction, when municipalities in Maine issue bonds.

656. In addition to authorization by legislature, that by popular vote is required for all issues in many states, and for certain issues or kinds of issues, and for certain kinds of municipalities (such as towns and taxing districts), in other states. Irregularities in balloting may invalidate this authorization by election, as recently in Asbury Park, New Jersey, and Dawson, Minnesota. Special legislation giving a municipality or a group of them, but not all municipalities of the class, authority to incur debts for a certain purpose, has for the past 20 years been on the decline, owing to the growth of constitutional prohibitions. The constitutions quite generally forbid legislatures to pass local laws when, in the opinion of the legislatures, general laws are adequate. One treads on dangerous ground who buys municipal bonds issued under authority of laws that are general in their form but clearly special in their application; for the courts do not agree as to the legality of such legislation.

657. Invalidity more often arises from minor errors connected with the *process of issue*. Advertisement may have been omitted, or may have been insufficient. Flotations of Philadelphia, New York, and Plainfield, New Jersey, have been declined lately on the score of insufficient advertisement; of Peru, Indiana, and Reading, Ohio, because of errors in the details. It seems hardly possible that a municipality could mistake a law so apparently simple and general as that requiring the price to be at par or above; but Matrona County, Wyoming, sold an issue of 4s at par without including accrued interest, and a resale some months later was required for validation. Oneonta, New York, committed an equally incom-

prehensible blunder four years ago in selling an issue bearing an interest rate in excess of what was legal. The bonds were issued as $4\frac{1}{2}$ s, but the village was not allowed to sell anything higher than 4s; and the bonds had to be remade and sold as 4s. A school district of North Hempstead, Long Island, recently had a large issue refused because the resolution failed to state the rate of interest, or the maturity of the bonds. An excellent illustration of the nice regard for detail necessary in the process of municipal bond issue, comes from Boston. A few years ago the Council of that city voted certain appropriations to be met by a bond issue. A rumor was circulated to the effect that one member of the Council had left the meeting before the vote was taken. A denial was immediately forthcoming. But since the vote had been close the mayor called for a repassage of the ordinance, in order not to prejudice the bidding for that issue.

658. An important detail not to be overlooked is that the special tax levy be voted if required by law, or if permissible and to be expected, although not specifically mentioned in the bond enabling act. And if there are any restrictions to the power of taxation, it is equally important that the margin between the tax rate necessary for the funded debt and the rate allowed by law be amply sufficient to allow for any reasonable charge for current expenses of the municipality, which have priority of payment.

659. The *purpose of issue* has played no inconsiderable part in matters of legality and therefore in the history of past default and repudiation. It is still a factor worth thought in its relation to legality. To mention railroad aid bonds is still to wave a red flag in many sections of the country, especially in the Middle West. Of the 300 municipalities in Illinois that issued railroad aid bonds in the old days, over one-third repudiated them. Yet it is statutory rather than common law (except in Michigan) that is generally hostile. There are still, however, many states which specifically or inferentially permit the issuance of railroad aid bonds; for steam transportation service is commonly recognized as a public function.

660. But it is in furtherance only of public enterprises that municipal corporations may enter into contracts and create obligations. Even statutory authority may not transcend this limitation. And the purpose of issue must not only be public; it must also be in keeping with the political functions of the obligor corporation. Since the social and political demands of cities and

towns are more varied than those of counties and taxing districts, and since their corporate existence approaches more nearly to independence, it follows that there are more legitimate purposes for which cities and towns may issue bonds.

661. It will be found that about two-thirds of all flotations are for five purposes;—for waterworks, sewers and drainage, schools and school buildings, streets and bridges, and public works, generally. Although this may not be quite the order of importance gauged by the amount borrowed, it is the order of importance from the standpoint of social welfare. Before Indian Territory became a state, it was for only the first three purposes that Congress, by act of 1902, permitted municipalities in the Territory to obligate themselves.

662. It would be idle to attempt a list of the purposes for which municipalities may incur debt; but it may be worth while to emphasize again the fact that, apart from all questions of legality, some purposes are more legitimate than others. No one would question the propriety of housing fire apparatus with the proceeds of a city loan, but many would deprecate the use of a city's credit to plot a cemetery or build a Grand Army Hall. If rarely, yet at least sometimes, the distinction between legality and legitimacy of purpose has had a very practical bearing upon bond security. During the days of Reconstruction, while local Unionists and Northern Republicans were running the finances of Louisiana with a lavish hand, the Democrats of New Orleans, upon whom, as taxpayers, the burden principally fell, made it known through the press and by public resolves, that when they came into power again the state would repudiate such bonds as were not issued against legitimate wants of the state. And they kept their word.

663. The demand in some quarters for municipal ownership and operation of public utilities raises the question to what extent supplying a community with water and supplying it with light are public functions. It is a question that each state government has to answer through its legislative and judicial branches. It will pass without challenge, however, that none but municipal corporations proper,—those the subject of this chapter,—will undertake the ownership of public utilities, such as gas and electric lighting.

664. If the purpose of an issue, which is generally denoted by its title, is to take care of a previous flotation, a study of the antecedent issue is highly desirable. At best, "Refunding," or "Re-

newal Bonds," comprising about 10 per cent. of all permanent loans, indicate the extension of a loan that the municipality felt it could not pay conveniently. At worst they indicate a plot to float a loan under a misleading title, which might or would prove illegal if sold directly, without refunding. The legality of Refunding Bonds, then, involves its own issue, and the issue it refunds.

665. "Current Expense" and "Deficiency" loans betray a form of accounting improper everywhere, and illegal in some states. "Compromise" and "Adjustment Bonds" are the after-growth of default and litigation. Securities with titles like these indicate equivocal financing. Without investigation let no such bonds be trusted.

666. Validity, as affected by *debt restrictions*, gives constant concern to bond attorneys. The law is generally explicit enough, and sometimes the penalty too. The Constitution of Indiana says: "all bonds or obligations in excess of such amount" (permitted by law, namely 2 per cent. of the assessment) "shall be void." The difficulty is that there may often be disagreement as to the classification of debts, especially in cities, so that the net debt, upon which the restriction is based, may be in dispute. The difficulties sometimes to be encountered in ascertaining these statistical matters, have been canvassed at length in previous pages.

667. Although in the United States there is little recognized relationship between the life of a loan and the purpose of its creation, there are occasional statutory limitations of life based upon the principle that a debt should be extinguished before the object for which it was incurred shall have ceased its usefulness. To this end some states do not allow street improvement or school bonds to run as long as water bonds. Again in this matter we may look for example to Canada, where bonds issued for public improvements; such as sidewalks, etc., may not exceed in term the probable life of the improvement; and they may not be refunded; and an engineer's certificate, stating this probable life, is a necessary preliminary to the passing of the debt by-law. But in New York, 50-year bonds may be used for paving Broadway, that our children may pay for work which perished before their birth. The principle of limited duration finds its most perfect expression in 10-year serial equipment bonds, but the extension of the principle to many industrial bond issues, especially those secured by mortgage on wealth like lumber and minerals which is being depleted by opera-

tion, has been very successful, and its growing vogue is one of the most gratifying financial developments of recent years. Our municipal lawmaking bodies might well give heed.

REMEDIES OF INVALIDITY

668. Invalidity, as affected by the authority, purpose, or process of issue, or by the violation of debt or tax restrictions, is almost always accidental. There is seldom any deliberate irregularity on the part of the municipality, except in the petty matter of awarding loans. Criminality on the part of outsiders, however, is by no means obsolete. In recent years the forgery and successful hypothecation of municipal bonds by two men, alone, has amounted to \$1,600,000.

669. Trust Company Supervision and Certification. Therefore to safeguard the community and the investor against forgery and overissue there has arisen in the past decade the custom of placing the supervision of new municipal issues in the hands of trust companies. Following the regulations of the leading stock exchanges, the trust companies furnish steel engraving of highest quality, and sometimes special paper. Upon each bond is placed their countersignature. Often before the issue is offered the bankers or the public, bond attorneys acting for the trust company pass upon its legality. In these ways every precaution is taken against invalidity; and possible loss, except through municipal bankruptcy, is reduced to a minimum.

670. State Certification of Validity. Another encouraging sign in the development of bond finance is the growth of constitutional and statutory measures to protect municipal loans from future charges of illegal issuance. By the constitution of 1889 North Dakota declared

"No bond or evidence of indebtedness of the state shall be valid unless the same shall have indorsed thereon a certificate signed by the Auditor and Secretary of State, showing that the bond or evidence of debt is issued pursuant to law and is within the debt limit. No bond or evidence of debt of any county, or bond of any township or other political subdivision, shall be valid unless the same shall have indorsed thereon a certificate, signed by the county auditor, or other officer authorized by law to sign such certificate, stating that said bond or evidence of debt is issued pursuant to law and is within the debt limit."

671. In 1893 Texas passed a state law requiring the certification and registration of all municipal loans. It will be observed that in

232 CITY AND TOWN BONDS: VALIDITY AND GOOD FAITH

several respects this is an improvement on the provision of North Dakota.

" . . . Hereafter a county, city or town, . . . before . . . bonds are offered for sale, shall forward to the Attorney-General the bonds to be issued, a certified copy of the order or ordinance levying the tax to pay interest and provide a sinking fund, with a statement of the total bonded indebtedness . . . including the series of bonds proposed, and the assessed value of the property for purposes of taxation . . . ; . . . and if the Attorney-General shall find that such bonds are issued in conformity to the Constitution and laws, and that they are valid and binding obligations . . . he shall so officially certify.

" . . . Such bonds, after receiving the certificate of the Attorney-General, and having been registered in the Comptroller's office, as provided herein, shall thereafter be held, in every action, suit or proceeding in which their validity is or may be brought into question, prima facie valid and binding obligations . . . : provided the only defense which can be offered against the validity of said bonds shall be fraud or forgery."

672. In 1897 Georgia passed a state law to similar effect. When a municipal loan in that state shall have been voted, the Solicitor-General, or Attorney-General, shall file a petition in the office of the clerk of the Superior Court setting forth the details of the issue. The Judge of the Court shall hear and determine all questions of law and of fact. If no bill of exceptions is filed within 20 days, or if the Supreme Court affirms the judgment of the Superior Court when contested, the judgment of the Superior Court "shall be forever conclusive upon the validity of said bonds against the said county, municipality, or division, and the validity of said bonds shall never be called in question in any court of this state." All bonds so passed upon shall have stamped or written on them, "validated and confirmed by judgment of the Superior Court."

673. In 1903, New Jersey passed a new School Law and took occasion to validate all subsequent school issues; but this law has no bearing upon other municipal loans in that state. Its text is as follows:

"Whenever bonds shall be authorized to be issued by any school district as aforesaid, the district clerk shall transmit certified copies of the record of the proceedings authorizing the issuing of such bonds to the Attorney-General for his approval of the legality of said proceedings, and duplicate copies of such record shall be filed with the State Superintendent of Public Instruction."

674. When the new State of Oklahoma was formed in 1907, a clause validating all state and municipal loans was inserted. The text is almost identical with that of its model, the clause in North Dakota's constitution.

675. With Kansas, these are the only states we recall that directly or indirectly certify by the state to the validity of municipal bonds as a class. Still it is to be seen that, slowly but steadily, our lawmakers are protecting investors against the possibility of illegality.

676. Again turning to Canada for suggestions:—the Ontario municipal act limits the time within which action may be taken to quash by-laws purporting to authorize bond issues. But it further provides that if interest or any principal which may have become due shall have been paid *for one year* the bonds must be held valid.

Such a validating clause is not so good, however, as the North Dakota provision, which in its effect is like a mandatory Torrens Act guaranteeing title to land. Similar provisions are found also in the municipal acts of other Canadian provinces. Alberta, and if we remember rightly, Saskatchewan, has a statutory provision with regard to school district bonds which is almost identical with the North Dakota provision.

677. **Validation of Issues by Courts and Legislatures.** Although these ounces of prevention are worth more than the proverbial pound of cure, yet there is much assurance to be got from knowing that because the legality of a loan is in question it will not necessarily be defaulted. The city of Santa Cruz, California, has outstanding water bonds which, in the opinion of many, are illegal; but fortunately the taxpayers are unable to get satisfaction from the courts. In 1907 Walla Walla, Washington, and Christian County, Kentucky, sold issues which were declined, and Seattle an issue which was twice declined because of questionable validity. By upholding the validity of these issues the Supreme Courts of the two states made possible the sale of the bonds. With the same object in view an issue of Custer County, Montana, declined in 1906, was subsequently validated by legislative acts.

678. Still another means lies open, and sometimes has been availed of, to safeguard investors from illegal issues, and that is the employment by a municipality of some authoritative firm of bond attorneys to oversee the preparation of the enabling act and the subsequent proceedings. Thus the water bonds of Tucson, Arizona, were issued pursuant to an act of Congress, and to an ordinance of the City Council; and both the act and the ordinance were drafted by one of the leading legal firms of the country.

679. **Estoppel and the Bond Recital.** Lastly, and in some respects most important of all, validity is safeguarded by the recital engraved upon the bond itself. Municipal bond recitals in the United States have conformed of late to certain patterns, all more or less closely following the phraseology held to be effective by the United States Supreme Court. The New Hampshire municipal bond act of 1895 contains sets of forms acceptable to the state. The bond may or may not declare that it is one of a series of a certain number, or mention the specific purpose of issue, or the particular statute under which it is authorized. But besides promising to pay the bearer or the registered owner the principal amount at a certain time and place, it should declare in broad and general terms that it is issued under authority of law, for a corporate purpose; that all things necessary have been done to make it a legal, binding, and valid obligation of the municipality; that the indebtedness of the municipality, including the issue of which it is one, does not exceed the limit established by law; and that the tax necessary to pay it does not exceed any limitation established by law.

680. The courts have usually held that the *recital of regularity*, of which the above is an outline, "estops" (bars) the municipality from pleading invalidity as against an innocent holder of its bonds for value.

681. **The Bond Attorney.** Enough has been said in this and previous chapters to indicate the exceedingly important service rendered by the bond attorney. One of the strongest influences making for the present admirable credit of American municipalities has been the scrupulous care with which all questions affecting legality have been considered. To attempt an estimate of the proportion of all loans that have been put out with sufficient irregularity to cause correction by attorneys before acceptance would occasion unnecessary alarm. The bond attorney stands between the taxpayer and the investor, protecting each against the other, and working in the interest of both for a still higher development of municipal bond law and bond practice. His work is now so well done, and so systematically, that we rightly take it as a matter of course, and give ourselves, as individual buyers, in dealing with bond issues of recent years, to other considerations than those connected with validity.

682. **Good Faith.** It may seem to those who are not familiar with the history of municipal credit that good faith is so bound up with the legal aspects of funded loans that it is hardly a topic for in-

dependent treatment. But this is not the case. Although prosperity is the best guaranty of debt-payment, and law an able second, and good faith easily influenced by both prosperity and legality, yet it is a thing apart, and may and does exist, and support the credit of loans which are backed by neither of the other two.

683. San Francisco has now recovered from a calamity that almost obliterated her. The city's extreme necessities have been the occasion of heavy bond issues. Yet the price paid for these has suffered little from the fact of the earthquake and the subsequent prostration. Of course investors are ready to buy the obligations of San Francisco because they have confidence in her material future; but this confidence is greatly strengthened by the fact that the city never repudiated any of its obligations.

684. On the other hand bad faith may exist where there can be no question of either financial competency or validity. Pomeroy, Ohio, deliberately defaulted in 1910, on the interest of its largest issue of Refunding 6s. The reason ascribed was that the bonds were not callable; but the village fathers felt they would like to retire the bonds and took this means of accomplishing their purpose. Although Pomeroy may hope to lower its interest rate, the breach of faith will cost more than it comes to, for it removes the bonds of the village from the class that are legal for investment by savings banks.

685. The factor of municipal credit that we entitle Good Faith has kept pace in growth with the factors Financial Competency and Validity. Only 30 years ago, approximately, there was held in Missouri a general convention of representatives from various parts of the state for the purpose of seeking ways and means for municipal bond repudiation. The following extract from an address delivered there and afterwards circulated, expresses the contemporary opinion of the Middle West upon all three topics.

"Many labored efforts have been made to show that there are questions of good faith and moral obligation in reference to the payment of these bonds, wholly independent of the question of their legality. We maintain that arguments based on such considerations have no application to the payment of municipal obligations, and never had. . . . The only questions to be asked and answered in reference to a bond of that character are, Has it been issued by proper authority of law? Is the taxable property of the locality sufficient to meet the obligation, if its payment has to be enforced by law? These are the true foundations of public credit as applied to municipal corporations, and they are matters of law purely."

686. What are the inevitable concomitants and results of such reasoning? Repudiation. Default and repudiation. So it is that the Mississippi Valley at this period gives up a long list of defaulting cities, among which are the following: Duluth, Minnesota; Keokuk and McGregor, Iowa; Quincy and Cairo, Illinois; St. Joseph and Cape Girardeau, Missouri; Leavenworth, Lawrence, and Topeka, Kansas; Nebraska City, Nebraska; Little Rock and Helena, Arkansas; Memphis, Tennessee; Shreveport and New Orleans, Louisiana; Mobile, Alabama; and Houston, Texas. Missouri, naturally, after such an expression of sophistry, was not to be outdone. "Of one hundred counties, townships, and cities issuing bonds in Missouri, nine-tenths have defaulted."¹

687. How sentiment has changed within a generation we already know from our survey of the many stringent laws regulating the amount and manner of debt-incurrence, and from the attitude of the courts towards the rights of innocent purchasers. Instead of unblushing and deliberate repudiation on the part of municipalities that are now in difficulties of one sort or another, we find a sober acknowledgment of the moral obligation. Helena, Montana, stands ready to retire her illegal warrants of '93 when a way shall be found. Jeffersonville, Indiana, has long since refunded an illegal issue, with the permission of the legislature. Even when compromise with the bondholders shall become necessary, through visitation of catastrophe: war, pestilence, earthquake, fire, flood, or wind-storm,—*actus dei*, acts of God, is the legal phrase,—we shall be led to expect hereafter, from our experiences with Austin and Galveston, Texas, and other cities, that any adjustments necessary will be equitable, and that the municipality will go more than halfway in meeting its creditors to maintain its good faith. If the present is any criterion, we shall never again see a city of the size of Memphis, Tennessee, or Duluth, Minnesota, disincorporate itself with the connivance of courts or legislatures in the attempt to defraud its creditors.

688. Finally, there can be no greater assurance of good faith given investors in municipal bonds than the simple statement (for which we have authoritative support) that *no American municipality of any importance has defaulted in recent years on the principal or interest of any of its obligations.*

¹ *North American Review*, August, 1884.

OTHER MATTERS AFFECTING MUNICIPAL CREDIT

689. The credit of a city or town is in no way different from that of a firm or individual. It is based on records and figures, but it is not ascertainable by means of them. Municipal credit is the composite judgment of bond buyers as to the certainty and promptness with which payments due shall be met. It might be difficult to explain convincingly why Providence, Hartford, Springfield, and Worcester are close rival claimants for the honor of highest credit in New England; or why the credit of Albany is slightly better than that of Buffalo; or the credit of corrupt Philadelphia almost equal to any of the cities mentioned. It is not, however, difficult to understand, from the principles laid down in these pages, why the credit of municipalities in Massachusetts, Connecticut, and New York is better than the credit of those in Louisiana, Kansas, and Nevada.

690. Yet we have by no means canvassed all the influences that affect the security for city and town bonds. The volume of industry and commerce, as distinct from population and taxable wealth, gives up pertinent figures. They are to be found in the statement of bank deposits, capital, surplus, and clearings, and in statistics of building, employment, and wages,—some of which are, or will be, furnished by a bond house offering a municipal loan. "One industry" towns like Marblehead and Brockton, Massachusetts, West Seneca, New York, Houghton, Michigan, and Butte, Montana, suffer in credit from the undistributed risk. The town of Gillette, Colorado, was dependent for its existence upon the life of the neighboring mines. These have failed, and Gillette, with a population reduced to about 50 souls, defaulted on its water bonds in May, 1907.

691. Mere age, coupled with a good record, is of great advantage. It materially assists the credit of Dubuque and Des Moines, Iowa, which are ancient burghs in comparison with most cities of their size in the West. Eastern capital will purchase their obligations when it will not those of many younger cities growing five times as rapidly,—cities in Oklahoma, for instance, a state with hardly a municipal yesterday.

692. The character of the population, of course, is important. The matter is closely akin to those of sectional and race differences. Distinctly proletarian cities are not looked upon with equal favor, nor communities showing socialistic tendencies. In April,

1907, not a single bid was received for a large bond issue of Milwaukee, Wisconsin. The times were not favorable for high prices, to be sure, but the cause assigned was fear of a Social Democratic victory in the impending local election.

693. It will be seen that there is no limit to the number of influences affecting municipal credit, or to the amount and range of study that can be given it. Sciences with Greek polysyllabic titles can lend genuine aid. The fact that the very existence of some 20 towns in Maine was threatened this past year by forest fires, calls attention to the usefulness of physiography. The experience of San Francisco, Stockton, and Alameda suggests that even seismology is not without its service. Climate, situation, and transportation facilities are matters of commercial geography. Commercial geography speaks favorably for the future credit of Tacoma and Seattle. It was only 16 years ago that Seattle was marketing its 5 per cents. at par at a time that New York City 3 per cents. were par bid. The gap between the bond prices of the two cities is already closed.

694. *Price Factors.* Although we have repeatedly said that price was more closely related to security, in municipal issues, than in any others, and that therefore an inexperienced investor could judge of his security by the return offered him on the investment, the statement requires modification. There are several price factors besides those of relative security and, of course, current interest rate.

695. Of no mean effect is the *distribution* of municipal issues. Not that it matters much whether the call for a specific loan is particularly general, but whether the city or town offering it is of sufficient importance, and its obligations as a whole (by reason of numbers and frequency of issue) sufficiently familiar for the loan to be a staple of the bond market. Like equipments, loans of towns and villages suffer in price somewhat from their comparative individual obscurity;—they lack the competitive demand;—but, like equipments, this loss is compensated by the general excellence characteristic of the municipal bond class to which they belong.

696. *Local demand* is a very important price factor. Naturally the call of every section for its own municipals is strongest. The principal sectional division is by states, for within the state laws and regulations are fairly uniform. In those states, therefore, where the demand is greater than the supply,—in other words in

the older and richer states where the capital accumulated for strictly investment uses is large as compared with local debts,—as in New Hampshire particularly, the prices obtained discourage alien purchase.

697. *Institutional demand* is not always, but very generally, a phase of local demand. Laws in each state regulating the investment of state and municipal sinking funds, of trust funds, of the surpluses of insurance companies, of the deposits of savings banks,—are naturally most favorable to the securities of home cities, towns, and districts; for home affairs are of immediate knowledge and subject to regulation.

698. *Demand for Use as Collateral* is another market factor. When bonds are acceptable by the Secretary of the Treasurer as security for government deposits, or in emergency against additional circulation of national bank notes, or when they are acceptable by state superintendents of banks in trust for trust companies, or by superintendents of insurance companies to secure policy holders, the market characteristics and prices will be governed accordingly. In March, 1909, there was an excellent instance of the effect of institutional demand on prices. It was understood that the law requiring insurance companies which do business in Oregon to deposit \$50,000 of Oregon municipal bonds with the state Insurance Commissioner, has been revoked. This was expected to have such an unfavorable effect that, until prices for Oregon municipals become adjusted to the change, the buyers of bond houses were cautioned against the purchase of Oregon bonds except at safe concessions.

699. *Tax Exemption.* *Tax Exemption*, as applied to municipal bonds, is the most important price factor from the character of the security and the prevailing price of money. It is a subject of which not even all the general aspects are familiar to the investing public. Probably the large majority of bond buyers are not aware that bonds issued by territories of the United States or by municipalities in territories, are exempt from state taxation, either by the state directly, or by its political subdivisions, to the same extent as United States bonds. More briefly: Municipal bonds issued in territories, and the territorial bonds themselves, are exempt from tax everywhere in the United States.

700. Owing to the importance of the subject, and the general incredulousness of bond buyers, the argument as presented by a prominent firm of Chicago attorneys is printed here:

240 CITY AND TOWN BONDS: VALIDITY AND GOOD FAITH

"It is the settled law that the United States Government has no power under the constitution to tax the property or revenue of the states or their municipalities, and likewise and for the same reason no power to tax the bonds and interest thereon of the states or their municipal subdivisions. *Pollock vs. Farmers' Loan & Trust Co.*, 157 U. S. 429, 584, 6, 601, 3.

"The converse of this proposition is equally well established, that a state has no power, by taxation or otherwise, to retard, impede, burden, or in any manner control the operation of a constitutional law enacted by Congress to carry into execution the powers vested in the general government. *McCullough vs. Maryland*, 4 Wheat., 316; *Osborn vs. Bank*, 9 Wheat., 738.

"The territories mentioned are political subdivisions of the United States, and their relation to the general government is much the same as that which counties bear to the state. *National Bank vs. Yankton*, 101 U. S. 129.

"The Act of March 4, 1898, was passed by Congress pursuant to its constitutional paramount dominion and control, national and municipal, over the territories; (*Shively vs. Bowlby*, 152 U. S. 1); and the municipal corporations acting thereunder are as much local agencies of the United States as the municipal corporations in a state are state agencies. It necessarily follows, therefore, that a state has no more power to tax the bonds under consideration than any of those territories or the Government of the United States has to tax the bonds issued by state municipal corporations. *Grether vs. Wright*, 75 Fed. 742."

701. Unfortunately there has been no test case for territorial bonds; and we have recourse, therefore, only to legal opinions such as this. The case of *Grether vs. Wright*, which is cited in the argument above, had reference to the obligations of the District of Columbia; but the decision rendered by Judge (now President) Taft, who presided, was sufficiently broad for all kinds of federal agencies. As the result of these and like cases, the opinion of bond attorneys and of well-known attorneys-general has been almost without dissent,¹ as to the non-taxability of territorial municipal bonds.

Territorial municipals, therefore, have an attraction for purchase which is as wide as the country; and as the result they sell at prices unwarranted by the comparative security behind them.

702. It is now announced that the Supreme Court of Minnesota holds by a decision of March 10th, 1911, that municipal bonds of territories are taxable as part of the assets when held by savings banks, since "the tax upon the surplus is a property tax and not a tax upon the franchise to exist as a corporation."

703. Very few people indeed have given thought to the corollary question as to whether bonds issued by municipalities in territories remain tax exempt when the territories become states. Probably the best view is that since the imposition of a tax violates the theory

¹ One well-known firm of Chicago bond attorneys takes exception to this view.

that as agencies of the Federal Government these municipalities should not be hindered in the raising of funds, the tax can never be imposed, for knowledge on the part of investors that there might later be a tax, would lessen the price the bonds would bring and thus hinder the debt-making power.

704. Although United States bonds, insular bonds, and territorial municipal bonds are the only kinds tax exempt in all states, in at least eight states all the municipals issued since the passage of an exempting act are tax free. These states, with the dates of the respective acts, are:

1893 New Jersey,	1905 Wyoming,	1908 New York,
1902 California,	1906 Ohio,	1909 Michigan.
1903 Indiana,	1908 Massachusetts,	

705. In New Jersey, Ohio, and New York, the law is retroactive, in the sense that it affects the old issues (and their prices) as well as the new, but not retroactive in the sense that past taxes can be recovered.

706. The purchaser of short term paper issued by municipalities in these eight states should read the law of tax exemption pretty carefully in case his paper runs over tax day. Whether in New York State, tax warrants, loans in anticipation of taxes, revenue bonds, special assessment bonds, etc., etc., shall be taxed will depend, says the State Board of Tax Commissioners, on whether they are classed as "bonds of municipal corporations" by the particular county, town, city, or village issuing them.

707. In some other states, e.g. Pennsylvania, it is the law that if the municipality will undertake to pay the *state tax*, the bond then, *ipso facto*, becomes absolutely tax exempt; and if the holder is domiciled in the state no municipality has a right to levy a personal property tax against him on account of such bonds.

708. In some states municipal bonds issued for certain objects are tax exempt, in whole or in part. Bonds issued in Connecticut in aid of certain local railroads, and issues refunding these railroad aid bonds, are free from all tax. Before the passage of the recent New York State law, all municipals in the state, issued for refunding, enjoyed special tax exemption; and in general, the bonds of New York City, also, except for the state tax,—when there was one,—and the bonds of Buffalo, after June, 1906, except for state and county tax. Not infrequently, it has been a debatable question, e.g.

in Seattle, as to the extent, if any, to which the bonds were tax free.

709. In the whole matter of tax exemption it should be kept in mind that exempting laws have no extraterritorial effect. Just as United States bonds are liable to tax by foreign countries when held by their citizens, so state and municipal bonds, tax free within their own confines, are liable to tax within the confines of other states.

710. With tax exemption we come to the end of the more important factors that enter into the intelligent purchase of city and town bonds. But the three chapters devoted to this subject will have failed of their purpose if the multiplicity of principles and illustrations they present has obscured the main idea,—that American municipal bonds are the best security for the American people to buy. That is to say, as a class, they will probably cause less regret to their purchasers than will any other class now commonly bought for investment.

CHAPTER XIX

THE BONDS OF TAX DISTRICTS

711. In introducing the subject of *City and Town Bonds*, a distinction was made between municipal corporations proper, such as cities, towns, and villages, and involuntary, quasi-municipal corporations, such as counties. Counties, townships, and the other various taxing districts, it was said, were usually involuntary corporations in the eyes of the law.

"We have recognized," declares the Supreme Court of North Carolina, "the right of the legislature to divide counties into school districts, fence districts, road districts, etc., and to confer upon them municipal powers and duties."

712. As involuntary corporations, agencies merely of the state, established to minister to local needs, the character of the bonded obligations put forth is determined by the *public purpose* of the corporation, and is limited to that purpose. So, for the most part, school districts issue only school bonds; irrigation districts, irrigation bonds; and water districts, water bonds,¹ etc.

713. Exceptions are to be taken to the singleness of the purpose of the issue in respect to county and township bonds. We have found not a few legitimate county functions; and townships may borrow money for the construction and repair of roads, bridges, schools, town halls, poorhouses, and sometimes for railroad aid.

714. *Origin.* It follows, then, that there is no limit to the possible kinds of districts except the limit of public functions for which districts may be formed. There are fashions in these matters as in everything else. Some states affect Fire Districts; Maine, in particular, Water Districts; Pennsylvania, Poor Districts. What may

¹ The divisions mentioned are not always strictly taxing districts. "Taxed Districts" would be a more exact title, e.g. in Michigan the county tax is divided among the towns; and the town supervisors levy the tax. Per contra, in Indiana, the township tax is levied and collected by the county; and the township bonds are issued through the county commissioners.

It is only for want of better classification that Special Assessment Bonds are noticed in this chapter.

be the necessity for Poor Districts it is hard to see, especially when the divisions are coextensive with cities or counties. Their existence, especially when they *are* coextensive, suggests the circumvention of such laws as those limiting the amount of debt or tax that may be levied by a municipality. The town of "X" may wish to buy a poor farm, or more probably, build a school, or own waterworks. But the town does not wish to exhibit its true debt for fear of hurting its commercial rating; or it may be prohibited from further debt incurrence by having reached its debt limit. What, then, could be more beautifully simple than to incorporate the same property and population into a Poor, School, or Water District, as the case might be? Not *all* fiscal sleight-of-hand has been left for private corporations. We have noticed how opportunities for this sort of thing have been limited in North Carolina.

715. Districts that are corporations coextensive with municipalities proper, but distinct from them, may exist for reasons less dubious than those mentioned. Then again Water Districts are sometimes formed when more than one municipality is to receive the water. This, too, is not necessarily an attempt at debt concealment, but rather an apportionment of cost. To play on words, sometimes, in violation of the Euclidean axiom, even three or more corporate bodies occupy the same space at the same time. Council Bluffs, Iowa, the Council Bluffs School District, and Kane Township are three coextensive municipalities. Los Angeles, Los Angeles City School District, and Los Angeles High School District are also coextensive.

716. Tax Districts often have their origin in the need of improvement felt by a locality which in its entirety is not a municipal corporation. This want, in the nature of the case, is territorial in character, rather than corporate. For instance, people living in a certain locality need protection from the encroachment of the neighboring river and are willing to pay special taxes (to be levied on only the property to be benefited), which their neighbors on higher ground should not have to shoulder. The needs of these lowland people are met by municipal Levee Districts; or if it is a matter of marshland, by Drainage Districts. Thus Levee and Drainage Districts may include only parts of cities, and yet extend over the boundaries of two or more counties.

717. Again, a certain small town may covet the improvements enjoyed by nearby cities, especially faucet and hydrant advantages. But the town may be so laid out that it is not feasible to supply

with water any but the most central section. Obviously those who are not to benefit by the proposed installation of a water supply will vote in town meeting against the measure. If the recalcitrants block its passage the inhabitants of the central portion of the town may form a Water District or a Fire District, to include only the properties to be supplied with water; but the assessable value of the district may be 95 per cent. of the town's assessable wealth.

718. Conversely, installation of improvements may benefit a certain section which includes not only a whole municipal corporation, but the inhabitants of a large adjacent area (e.g. in the Port of Portland, Oregon, by opening navigation to the sea). Under such circumstances it is equitable that all the benefited property bear its fair share of the cost of the improvements; and to that end this district may rightly be incorporated for purposes of taxation.

719. The District Statement. It is evident from the origin of taxing districts that the financial statement, upon the basis of which the bonds are usually bought, is more generally misleading than the statement of counties, cities, or towns. Cities and towns, for instance, may have and often do have no included subdivisions upon which there is a tax drain not exhibited in the regular city tax. But taxing districts, on the other hand, are quite generally subdivisions of municipalities proper; and, with few exceptions, subject to a tax drain not exhibited in their own tax rate, but indeed several times as great. Therefore it is even more desirable that the bond buyer be informed as to the relation of the district to the larger division or divisions of which it is a constituent, than in the case when he purchases bonds of cities, towns, and counties. And yet in the bond circular he is almost never so informed.

720. The District Tax. The district tax is generally smaller than the general municipal tax because it is levied to support and acquit obligations incurred for a single object or purpose; whereas, the general tax has to care for the multifarious needs of the municipality. In fact the district tax is a "special tax" in such a true sense of the word, and subject to such special conditions, that we may find civil divisions like the Greenfield (Mass.) Fire District, with loans outstanding but no district tax at all.

721. Of the tax rates of the various kinds of districts themselves, that for School Districts may legitimately average higher than the other rates, unless (as by the laws of Iowa) the same result is attained by permitting a heavier debt incurrence; for the American

system of public instruction is the most important and expensive special function on which it is customary and desirable to make taxing districts; and the tax has not only a funded debt to maintain and amortize, but also a heavy annual expenditure for maintenance of school, purchase of supplies, and payment of salaries. But even the school tax is usually smaller than the municipal tax proper.

722. Special Assessment Bonds. The tax power has an aspect of peculiar interest in Special Assessment Bonds. These securities, quite commonly issued by cities and towns, are made payable by statute out of sinking funds raised, as the name implies, by special assessments upon the property benefited. In the past assessment sinking funds frequently have been diverted from their use,—not only by arrant speculation, but by deliberate municipal misappropriation of the funds. When, because of the resulting deficit, the interest or principal of assessment bonds goes unpaid, a vital question is raised as to the bondholders' recourse to the tax power.

723. On default of Special Assessment Bonds the bondholders can look to the courts for a supplemental assessment to make good the deficiency. But further than this, in certain jurisdictions the implied power of taxation has been extended even to cover Special Assessment Bonds; and the bondholders have been given judgments against the offending municipalities, to be satisfied out of general taxes, the courts holding "that the grant of power to levy special assessments for the payment of bonds was not exclusive, and that although no authority was given by the act in express terms for the levy of taxes for bonds, the corporate authorities of the city might be compelled to exercise their general powers of taxation to secure their payment."¹

724. This extreme extension of the doctrine of the implied power of taxation would not hold, however, in most state courts. The Supreme Court of Wisconsin, for example, has declared that improvement bonds are not general city obligations. The Kansas City (Mo.) Park District Bonds are a notable illustration of Special Assessment of the same type. Special Assessment Bonds in Iowa, Indiana, and Illinois are not a general liability; but in Michigan and Kansas they usually are.

¹ United States vs. New Orleans, 98 U. S. 381; United States vs. Fort Scott, 99 U. S. 152; United States vs. Saunders, 124 Fed. 124.

725. The law in Kansas for cities of the first class runs as follows:

"Whenever the mayor and council may cause any street or alley . . . to be graded, . . . the expense of which is chargeable to the adjacent property, . . . they may, in their discretion, . . . issue internal-improvement bonds of the city, payable in ten equal installments of equal amounts each year, none of which bonds . . . shall run longer than ten years, nor bear interest exceeding 6 per centum per annum. The credit of the city issuing such bonds shall be pledged for the payment thereof."

The Kansas Digest (Dassler 96), gives this synopsis of the law for cities of the second class as interpreted in *U. S. vs. Fort Scott*, just mentioned:

"Where a city of the second class issues improvement bonds for improvements, for which the law provides special assessments against adjacent property, a bona-fide holder of such bonds is not bound to enforce his judgment obtained against the city on such bonds, by the special assessments provided for by law or ordinance. He is entitled to a mandamus ordering a general levy to pay his judgment, the city to reimburse itself out of the proper assessments."

726. The bond buyer should always require to be satisfied on this point of direct municipal obligations, since many issues reach the public with their status not yet established. The federal courts are more inclined than the state courts to view them as general obligations.

727. Assessed Valuation. The Assessed Valuation of the district, especially when taken in conjunction with its population, will indicate very readily whether we have to deal with a rural or an urban district. If urban, a comparison of the assessment of the district with that of the city or town with which it is connected will indicate whether the district is only a section of the municipality, whether it is coextensive with the municipality, or whether it embraces the municipality and other territory adjacent.

728. This comparison will be sound because the basis of the assessment—that is, the ratio of the assessed to the real valuation—is almost always the same as that of the municipality proper, since the valuations are adjusted by the same officers. The taxing district has no genuine political or social existence; it is hardly more than an abstraction, usually conceived in the interests of convenience and justice for territorial apportionment of taxes. Hence there is no reason for separate assessment.

729. The assessed valuation, then, which is identical with the valuation of the same area of the municipality proper in which it

is situate, or which it includes, presents to the investigator no difficulties that have not already been discussed in the preceding chapters.

730. Secondary Resources. Since the taxing district maintains such a slight corporate existence it has not the variety and wealth of secondary resources customary with cities. It may, and usually does, establish a sinking fund for its obligations, but it seldom is the owner of treasury assets in any other form. Franchise, corporation, and other corollary taxes, needless to say, are not resources of the taxing district as such.

731. Mortgage Security. The resource of foreclosure proceedings, however, is not infrequently available to holders of district bonds; for such bonds offer mortgage security more generally than do any other kinds of municipals, as may be seen by reference to the preceding chapter. Mention was made there of the fact that School District Bonds in the state of New Jersey are secured by lien on *all* the property in the district. In Illinois there is a sort of special assessment Drainage District bonds which "are a lien on the lots, blocks, or parts thereof which shall be designated therein; but before the issue the owner of the lots . . . to be charged must indorse upon the back of such bond his consent, under seal, in substance as follows:

"I hereby indorse the within bond and consent that the lot, or lots, or parts thereof therein designated shall become liable for the interest and principal therein named, and the same shall be a lien upon said property from this date until paid off and discharged."

"The bond when executed by the city or village and so indorsed by the owner shall be recorded in the Recorder's office in the county, and such record shall be a notice of the lien so created to the same extent as the record of mortgages is a notice."¹

732. In California (and quite generally in the irrigated states) all the real property of irrigation districts is liable in default. "The Board of directors of the district may pledge, by mortgage or otherwise, all property of the district, including its rights and privileges," so that, in default, not only the possession and management of the water system comes to the bondholders, but all other property of the district may be foreclosed under the mortgage in the ordinary way "so as to convey to the purchaser the legal and equitable title to the property."

¹ See Hurd's *Revised Statutes of Illinois*, Edit. 1908, p. 372, §§ 327, 328.

733. District Debt. The relation between debt and taxation is so direct and intimate that it follows from the nature of municipal taxation that the debts of taxing districts are comparatively small and simple, and that the debts of school districts bear the highest ratio to the assessment. But the nominal debt of districts is a matter quite apart from the real debt, of course. The situation has been canvassed so completely in discussing the real debts of other municipal divisions that elaboration is unnecessary. Still to illustrate the point a recent circular, offering Cook County, Illinois, School District No. 76 bonds, gives the "total bonded debt" of this district as \$57,500. The district includes the south half of the city of Evanston. The net debt of Evanston at the time was over \$250,000. Arbitrarily assuming that one-half of this debt was the direct municipal burden upon the south half, we are brought to the conclusion that the nominal debt of the district, as presented upon the circular according to universal custom, was not over one-third of the real bonded debt of the district.

734. Validity. The fact that Special Assessment Bonds may come into the hands of the investor with their status as municipal obligations undecided suggests immediately the most imminent possibility of weakness in District issues: their validity. District Bonds are the product of special conditions; and the application of general principles to special conditions is likely to be a matter of variance and dispute.

735. This is especially so when bonds are issued in behalf of a new kind of project, concerning which questions of law have not yet had the benefit of judicial decisions. The Wright Act in California, under which so many irrigation projects were initiated, brought many bondholders to grief. Among the irrigation districts in that state which have been declared illegally organized, or the bonds of which have been adjudged illegally issued, are the Alessandro, the Escondido, the Linda Vista, and the San Jacinto and Pleasant Valley districts; and the list might be extended.

736. After extended litigation this question of validity has been met in Indiana in the case of Indiana Gravel Road Township bonds by the affirmation of the State Supreme Court as to their legality. New Jersey frankly recognizes the need of unusual precautions in this respect by requiring that certified copies of the proceedings of townships, incorporated towns, or borough school districts, when they issue bonds, be submitted for the approval of the State Attorney General.

737. Third only to the history of State Bonds and Railroad Aid bonds, American bond law has no more interesting chapter than that on District obligations. Railroad aid, fortunately, is a thing of the past, for the most part; but district debt incurrence was never more common than to-day. District bond litigation, even in a city like San Francisco, with excellent municipal credit, is by no means ancient history. It never redounds to the credit of the issuing municipality.

738. Good Faith. Good faith, which is so closely associated with validity, is not to be expected of districts in that high degree we find it nowadays in the large cities. A taxing district has not the individuality or personality of a city or town proper. It seldom has a wide reputation to sustain. There is a prevalent opinion, not wholly without justification, that, other things being equal, school districts are most safely relied on. The attitude of the public toward the objects for which funds are raised has had much to do in the past with the fate of civil loans. Just as the hostility of the people to Louisiana State Bonds issued by a Republican administration, and toward Railroad Aid Bonds, issued in the interest of designing corporations, has brought in its train default and repudiation, so the pride of the people in their public school system has undoubtedly upheld the credit of loans raised in behalf of schools.

739. We have already noticed that tax districts have frequently been formed (e.g. in Tennessee and Minnesota) for the sole purpose of evading just obligations. The following clipping from the *Omaha Bee* of Jan. 9, 1901, cites a typical instance of this practice:

"The case grew out of the sale of bonds by the precinct of Nebraska City, Otoe Co., in aid of the Missouri Pacific Railroad Company. According to the allegations of the petition, the County Commissioners created the precinct of Nebraska City, which includes the town of that name and adjoining farm land, for the sole purpose of enabling the citizens to issue the bonds.

"The bonds were issued in the sum of \$40,000, and sold, the plaintiff purchasing \$30,000 of them. Interest was paid for some time and then the County Commissioners refused to levy a tax for the payment, holding that the creation of the precinct was illegal. They then by resolution destroyed the precinct.

"In his judgment Judge Munger ordered the Commissioners to levy a tax sufficient to pay the debt due the plaintiff, assessing the property in the precinct of Nebraska City as fixed and defined Oct. 4, 1886, the date the bonds were sold."

740. Practices that were tolerated in the eighties are no longer possible to thieving municipal, any more than they are to private, corporations. It is not likely that any of us shall live to see such

violations of good faith as those in Nebraska City, Memphis, or Duluth, in past generations.

741. Rural Versus Urban Districts. In so far as taxing districts partake of the nature and dignity of urban municipalities, their paper is to be desired as an investment. But rural districts, even to a greater extent than rural counties, are difficult of appraisal; it is hard to get satisfactory and authentic statements by which to ascertain the tax burden of the rural district, its geography, its exact status as a corporation, and its territorial relations to the parent corporation.

742. Butte, Montana, School District No. 1 may properly be called an urban district, since it comprehends, not only the entire city of Butte, but a larger portion of the taxable property of Silver Bow County, in which Butte is located. Therefore it is able to market its bonds as 4s and 4½s. The other school districts of the county, obviously rural, having but little property value and a sparse population, and being little known, would be of small interest to the bond buyer.

743. Metropolitan Districts. Metropolitan districts, like metropolitan counties, borrow in some degree the credit of cities with which they are associated. The best known is the great Chicago Sanitary District, which includes not only the city of Chicago, but a large area of adjacent territory—in all about 360 square miles. The credit of the Chicago Sanitary District, although not equal to that of Chicago, is exceptionally high.

744. Many well-known cities of the country have independent school districts which enjoy excellent credit, as being coextensive with, or as including, their respective cities. Of such are the School Districts of Indianapolis, Indiana, Springfield, Ohio, and Sioux City, Iowa.

745. Conclusion. Since, now, the range of quality in District Bonds is greater than that in any other kind of municipal issues, more knowledge and discretion are necessary to their proper purchase; and in aid of the purchase the arbitrary rules of limitation,—geographical, statistical, and otherwise,—will be of little help unless interpreted in the light of thorough investigation of the facts, fortified by the opinion of a competent attorney. But when intelligently bought, a higher return may be had from investment in District Bonds than from investment in other municipal issues of equal security.

PART III

CORPORATION LOANS

CHAPTER XX

RAILROAD BONDS: PROPRIETORSHIP, MANAGEMENT, AND PLANT

746. To write of railroad bonds is at once the easiest and the most difficult of the tasks this book has demanded. It is the easiest in the sense that the investment principles to be laid down are, for the most part, of general acceptance in their province, and established beyond peradventure by years of application to the business of steam transportation. It merely remains to record them. The task is the most difficult because the limits of these chapters demand elimination of so much interesting and valuable matter that is almost essential to the intelligent appraisal and selection of railroad bonds. It is easier to be prodigal of scant resources than to be abstemious amid such rich material as we have here.

Indeed the subject is so big, and so amply repays book work, that those who can are advised to read the studies mentioned in the footnote, as well as many other writings which can be noted and approached by following up these references.¹ The author has not attempted an original viewpoint or new modes of treatment, if these be possible. Little is written here that is not many times a repetition. But he hopes that the more important factors which bear directly on the security for railroad bonds are discussed in such way that all can see their relations one to another and to the whole, so that each investment principle can be studied more intensively than here, by those who desire, and that the whole scheme, with modifi-

¹ *The Anatomy of a Railroad Report*, Thomas F. Woodlock. "Railroad Bonds as an Investment Security," Floyd W. Mundy (in *Bonds as Investment Securities*, The American Academy of Social and Political Science, Philadelphia, 1907). *The Earning Power of Railroads*, Floyd W. Mundy, New York, published annually. *American Railways as Investments*, Carl Snyder, New York, 1907. *Moody's Analysis of Railroad Investments*, John Moody, New York, published annually. *Statistics of Railways in the United States*, annual report of the Interstate Commerce Commission; the latest yet issued is for the year ending June 30, 1909. *Railroad Reorganizations*, 1908, Stuart Daggett.

cations, can be applied to the types of public service and other bonds, which follow, without the necessity of repeating these principles in their entirety. If for no other reason, then, these chapters on railroad bonds should be read in anticipation of the chapters to come.

747. In its broadest aspect the security for our railroad bonds lies in the fact that American railroading is the greatest single business in the world.¹ It operates about a quarter of a million miles of track. There are nearly eight miles of track for every ten miles square of land. One million and a half, out of our total population of ninety-three million, are in the railway service. About 6 per cent. of the adult male population of the country are railroad employees. In 1895 there were 327,000 recorded shareholders (or part owners) of American railways. In 1910 the number reported for 116 operating companies was 746,221. These shareholders include many fiduciary holders: agents, trustees, educational, insurance, and savings institutions, so that American railways count their direct and indirect owners by the millions. We are dealing with a business capitalized in this country at over \$17,000,000,000, of which about \$10,000,000,000 is in bonds. We seek the investment value of these bonds.

748. The fact that this immense railroad carrier business has gradually lifted itself from a plane of business adventure and financial piracy to that of a national institution—not only for transportation, but for investment,—and that this semi-public business is intimately associated with almost every phase of the nation's well-being, is sufficient guaranty that in the main governmental regulation of this business, especially by the federal authorities, will work toward a better conduct of transportation and more certain elements of stability and value in railway securities.

749. Therefore, among corporation securities, it is truer of railroad bonds than of any others that the character of the bond itself is of consideration secondary to the character of the obligor corporation, as expressed in its history and present condition. This is not saying that a first mortgage bond is not generally better than a debenture, but it does affirm that, as a class, the debentures of the great trunk lines are stronger than the first mortgage main line bonds of the smaller, less well-managed roads, built, for instance, to be outlets for otherwise inaccessible mines or timber tracts.

¹ Not classifying agriculture under business.

CONTROL, PROPRIETORSHIP, AND MANAGEMENT

730. It is a common sense way of looking at the thing, after all, when the prospective buyer approaches his railroad bond investigation as he would approach the matter of making a loan to almost any kind of going business concern. His first thought is of the character and credit of the proprietors. Among railroads, public interest is such that this first step is without difficulty, so far as it relates to the financial leaders or interests that dominate or have dominated the road. Mr. Snyder's comments on the strong tendency of railroads to perpetuate, through generations, good or evil characteristics have already been quoted. Heredity counts for more than most people realize. It is a matter not of years but of decades to change the nature of a railroad. A knowledge of the conduct of a railroad stock on the exchange, over a period of years, and of its dividend record, its history in receivership, will be a crude but reasonably safe guide to the general health of the road.

731. As to the present, ownership and control may in some cases be looked upon as two separate and distinct aspects of proprietorship. The distribution of Pennsylvania stock among a large body of people, who look for income from it rather than profit, differentiates the Pennsylvania so markedly from Reading, the control of which, despite the interest in it of the Baltimore and Ohio and the Lake Shore, is in the hands of a few who are presumed to be much interested in the profits accruing from variations in the market value of the stock as from dividends. Yet in many physical respects these two strong roads are very similar.

732. There is much to be learned from the history of any proprietorship or control. The holders of the underlying bonds of one of the great Western systems have equities in earnings and securities which are as obligations appear of a very high type. But an analysis of the methods by which a comparatively small outlay of money obtained control of this property, by a system of holding companies and stock pyramiding, will not reassure a careful bond buyer that the interest will be conserved. When only a few millions of cash were necessary to control a property bonded for some hundreds of millions, the market price of the best of its bonds was sure to suffer when it appeared that the road might not be able to meet its obligations.

733. Where there is a truly dominating interest, such as Moffat in the Denver and Northwestern, and Pacific; Flagler in the Florida

East Coast; Atkinson, in the Atlantic and Birmingham; Hawley, in the Chicago and Alton, or Hill in the Great Northern, the inevitable questions are: is this a capable railroad man; is he conservative and constructive; who are his bankers; in what other roads is he interested, and what other connections has he? The same questions hold good for a dominating group of men.

754. No railroad development of the past ten years has greater significance to bond buyers than the general recognition of the necessity for the *entente cordiale* among the companies, which arises from a "community of interest." The youngest of those who have interest in financial matters remember the day of rate wars which precipitated so many roads into bankruptcy. When freight tariffs could not be maintained legally by competing carriers, through the agency of a pool, the desired result was obtained by the creation and recognition of a community of interest. The ownership by one road of the stock of another, with consequent dovetailing of directorates, led to amicable understanding and concert in action, when otherwise there might have been costly warfare.

755. But traffic alliances may exist without stock ownership. In this event the visible evidence of cooperation is to be found in the duplication of officers or directors. It is especially important that the smaller independent roads that do not originate sufficient traffic to make them self-sustaining, should have the benefit of friendly connections with a powerful system to relieve them of the possibility of destructive competition. In the case of an aggressive independent road this possibility may be an impending probability. There are well-known small roads to-day that are mentioned in these pages, which have greater difficulty in maintaining their corporate independence against the aggressions of larger systems than they do in maintaining the standard of their service or the sufficiency of their earnings. The recognition of the community of railroad interest has done more than anything else, except the general development of the country and of the railroads themselves, to place railroad finance upon its present stable footing.

756. **Management.** Management, as distinguished from control, may be looked upon as relating to railroad policies, particularly internal, and not to the manifestation of these policies in the road's operation. Subordinate in public interest to the financial heads, the railroad managers and their work will be best known to the inquiring investor in the records of physical and operating efficiency.

PHYSICAL CHARACTERISTICS

757. The second step in the investigation of almost any business is a study of the physical property. Lines of inquiry as to both physical and financial condition are first laid in the annual report. But as any study must be comparative, the results obtained from the report must be weighed in the light of previous reports, and of the reports of other roads operating under conditions sufficiently similar to lend value to the comparison. Ordinarily geographical proximity is the best basis for choosing roads for comparison. This is a leading cause for the grouping of railroads, according to location, by the Interstate Commerce Commission. But for some purposes of comparison, grouping according to the character of the traffic, or of the mileage operated, is more advisable. Nothing but common sense or a familiarity with statistical methods will determine the proper course for any particular purpose.

758. The annual reports of the Interstate Commerce Commission, which may be obtained at Washington, are invaluable for comparison. But unfortunately these reports are issued a year in arrears, and to this serious extent are handicapped in their usefulness. Whatever difference of opinion may exist as to the various phases of the work of the Commission, it cannot be denied that a great service has been rendered to investors, and to other students of railway practice and finance, as well as to railway men themselves, by the policy of the Commission in gradually shaping into uniformity of plan, American railway statistics of operation, earnings, and capitalization.

759. For an understanding of the physical properties there may be added to these sources of information one of the several sets of railroad maps now published. Perhaps the most accessible maps, though not the most detailed, are those incorporated in the *Railway and Industrial* supplements to the *Commercial and Financial Chronicle*. Maps of all the roads do not appear in any one supplement.

760. By means of these few helps one has excellent material with which to study the physical characteristics of railroads as they bear upon one's investment estimate of the road. The essential problems one will consider are.

- a—the location of the road,
- b—its size or mileage,
- c—the character of its traffic,

d—the character and condition of the equipment,

e—the operating efficiency.

761. Location. By location we mean, in general, the geographical situation, and, in particular, the strategic position. The geographical situation determines the nature of the traffic and therefore the character of the earnings. Every one naturally classifies roads according to their major business. We speak familiarly of the “grangers” of the Northwest, the “coalers,” hard and soft, of the Northeast, and the cotton carrying roads of the South.

A firm grasp of this grouping according to the major characteristics makes possible fairer comparisons of roads, and keener appreciation of their relative excellencies in such significant details as train loads and traffic density, of which we shall have more to say presently.

762. The geographical position suggests inquiry into the probable future of the road as affected by shifts in population and growth in property valuation. The trend of population is found in census reports, and valuations can be ascertained along the lines suggested in the chapters on *City and Town Bonds*. In later pages an effort will be made to indicate graphically the relation between population, wealth, and railroad securities in particular, for the country as a whole.

763. Strategic position is of great importance. The line without a competitor for local business, or with the shortest haul, or with the water-level grade, or with the best terminal facilities, commands greatest credit, other things being equal. The location determines the amount of the through traffic, and the ratio of the passenger to the freight business, and the diversity of the tonnage. Location, therefore, is the first of the physical characteristics to be studied.

764. Mileage. Roads are more technically classified by their size: i.e. in accordance with the average number of miles of single main track which they directly operate,—whether owned or not. Mileage classification is not generally comprehended. It is important because the necessities of comparison, especially in studying operating efficiency, make imperative a clear understanding of mileage. Obviously the gross tonnage, earnings, or charges of a 5,000-mile road cannot be compared with those of a 500-mile road without reduction to a common unit of measure. But if the tonnage, earnings, or charges are divided by the number of miles operated, after making proper deductions there is a basis of comparison.

765. For uniformity and for other reasons "operated mileage" does not include miles of extra track, whether main, siding, or switch. The reports will give separately the mileage of this extra track and the nature of it, and whether it is owned or leased, so that proper deductions may be made. Probably most people, at least in the East, overestimate the amount of extra-track road in the United States. Exclusive of the mileage operated by switching and terminal companies, the Commission reports the total mileage operated (all tracks) on June 30, 1908, as 333,646 miles, of which 230,494 miles were single track mileage, 20,209 miles were second track mileage, 2,081 miles were third track mileage, 1,409 miles were fourth track mileage, and 79,453 miles were yard-track and sidings.

766. Although growth in extra main-track mileage is a sign of traffic intensity, in making allowances it must not be expected that each extra track increases proportionately the tonnage capacity. There is no fixed rule of allowance for extra-track purposes of comparison. A thorough knowledge of the road and of the traffic must be the guide.

767. In railroading, if nowhere else, mere bigness is an advantage. It makes possible the long haul, of which we have spoken, and tends to diversify the traffic, and thus in turn insures against too radical a reduction of earnings on the failure of a local crop, mine, or industry.

768. **The Character of the Traffic.** This thought suggests the chief good of an analysis of the traffic. It enables us to judge how different sorts of conditions will affect the road's future efficiency and earning power. For instance, with knowledge that one-half of the New Haven road's business is passenger, and that its tonnage is highly diversified, and that so much of its business is short haul, we shall be led to expect future earnings in close conformity to the degree of general prosperity enjoyed in New England. But in the case of the Bangor and Aroostook, which draws nearly three-quarters of its business from freight, and which serves a country not as fertile or prosperous as some others, the failure of a potato crop, or a slackening in the demand for lumber, might make serious inroads on its income, despite generally good business conditions in New England.

769. In view of the importance of traffic analysis, particularly of freight analysis, it is the purpose of the Commerce Commission to supplement its present accounting structure with a uniform

classification of commodities carried as freight. Most railroads report their tonnage in accordance with the classification now used by the Commission. Its main headings, and its application to the Bangor and Aroostook for 1903 and 1909 are as follows:

	1903	1909
Products of Agriculture.....	17.27%	29.75%
" " Animals	1.82	1.19
" " Mines	8.68	9.51
" " Forests	41.54	37.73
Manufactures	11.88	15.14
Merchandise and Miscellaneous.....	18.81	6.78

These main headings are freely subdivided by the Commission for the benefit of those who wish to make more exhaustive studies; but we do not give the subdivisions here.

770. By observing the alterations in the absolute and the relative amounts of the various kinds of tonnage over a period of years an intelligent opinion can be formed of the road's growing dependence upon, or independence of, any one or few industries. By comparing results thus obtained with results of other roads in the same territorial group, or specializing in the same kinds of traffic, one obtains some idea of the weakness or strength of the road in diversification of tonnage. In general, the more diversified the traffic, the better.

771. *The Character and Condition of the Equipment.* The casual investigator will probably be somewhat at a loss to know how to turn to account the figures of the report that relate to equipment. They are not as illuminating as some other figures, for at best they cannot indicate the actual condition of the equipment. It may even be a question to determine just what rolling stock is owned by the road, and what is its equity in that stock used but not owned. The chapter on *Equipment Bonds* (see p. 292) will make clear the conditions that bring about the common use of engines and cars that are not owned by the road. By equipment is meant here, not only this rolling stock, but such other movable property as transports, ferries, tugs, etc.,—but not buildings or any part of the established plant.

772. Although it is difficult to elicit from the report the information desired concerning the condition of the equipment, nevertheless its importance is not to be questioned. The rolling stock is

the tools with which the company must do its work. The efficiency of the road's operation depends in large part upon engines and cars adequate in number, modern in design and structure, and in good repair. Put an old-time wood flat car in the middle of a 40-car train and the tractive force will pull the ends out of it, or on a down grade the compression will buckle it double. Rolling stock is that part of the property which depreciates most quickly, and therefore the condition of which is a most striking index of the present policy of the management.

773. The relation between an increase in the amount of equipment and in traffic development is more than a numerical computation because of the probable increased power of the engines, and of the endurance, capacity, and serviceableness of the cars. In no department of railroading is progress greater than in the development of the rolling stock.

774. Nearly all railroads show an annual increase in the amount of rolling stock owned. If the percentage of increase of equipment purchased or used in trust is greater than the percentage of mileage increase, there is a probable increase in traffic density. But the character of the traffic has its bearing on this matter. Coal transportation, for instance, will require a return of empty cars, but passenger traffic will more nearly equalize itself to and fro. Sudden changes in the operated mileage, due to purchase or lease, and involving no real loss or acquisition of rolling stock, must be considered in relation to the amount of equipment, if that has been reduced to a mileage basis.

775. *Statistics of Operation.* However favorable or unfavorable to railroad development the laws of the country become, nothing short of confiscation can jeopardize the security in *redemption* (as distinguished from security in liquidation) of bonds that are an underlying lien on trackage doing a steady and heavy business. Therefore we get right at the heart of the principles of railroad bond investment when we go straight to the road and learn the volume of its traffic and the efficiency with which this traffic is moved. If the road is doing much carrying and doing it economically, the earnings will pretty nearly take care of themselves.

776. We cannot neglect the study of earnings (to which we shall come presently), because too much striving after present economies may cripple future efficiency. We must therefore examine maintenance appropriation to settle this point. Or maybe the road is carrying too heavy a burden of debt, and underlying liens that are

theoretically protected by heavy mileage earnings may be practically in danger. But as a general and fairly safe rule, a road that is doing a sufficient business, and in workmanlike fashion, has nothing to fear.

777. By the amount of business done is meant, not the absolute number of passengers and tons carried, but the number carried, times the average distance in miles each passenger or ton is carried, divided by the average number of miles operated during the year. In other words, since it is the intensity of the work rather than the volume that counts, we must reduce the units of work to the common denominator of one mile. One of the factors of operating efficiency, then, is the *traffic density*, which is made up of the *passenger* and the *freight density*, and the relative importance of each to any road depends on the ratio of passenger to freight business done by that road. *Passenger density* is the number of passengers that have been carried, times the miles each has been carried, divided by the miles of road; or (the same thing), the total number of passengers carried one mile, per mile of road. Freight density, likewise, is the number of tons carried one mile, divided by the mileage of the road, or the number of tons, times the distance carried, per mile of road. It seems very difficult for the layman to grasp these highly important, but very simple ideas of the units of work performed by a railway.

778. Once the idea of traffic density is grasped, comparisons over a period of years, and with other roads in the group, become easy. One or two points, however, are to be observed. An increase in traffic density usually means an increase in gross business and in earnings; but density must always be checked for mileage reduced or increased since previous years. Furthermore freight density is a matter of weight, and the heavier types of freight are the less profitable to transport. Hence an increase in freight density, to be favorable to earnings, must not signify merely an increase in the relative amount of the kinds of heavy traffic.

779. Another factor of operating efficiency is the *trainload*. The train, with its engine and crew, is an important physical transportation unit because there is such a definite irreducible minimum of expense attending the movement of it. At least the expense of engine, engineer and fireman, conductor, and some brakemen, right-of-way, switching, etc., etc., is necessary whether the train is full or empty, whether there are three cars or thirty. Therefore the more business that can be accomplished by each train the better.

Thus trainload takes its place as an index of traffic density and operating efficiency.

780. The *carload* is a smaller transportation unit having the same bearing on our studies. Obviously the skilful traffic manager will endeavor to keep each car as nearly as possible at its maximum capacity by regulating traffic so that "empties" will not be returned to him. The financial heads will cooperate, by making traffic alliances that will assure balance in traffic movement. This was one of the several purposes of the acquisition of the Colorado and Southern by the Chicago, Burlington and Quincy, in the interest of the Hill roads.

781. The *passenger trainload* is the passenger mileage (or the total number of miles passengers have been carried) divided by the *passenger train mileage* (or the number of miles run by all passenger trains) during the year. Since freight traffic on most roads comprises the bulk of the business, and is so much the more profitable traffic, more study is usually put on the *freight trainload*. This is the freight mileage divided by the freight train mileage.

782. Here, too, one must be circumspect in the use of figures. Much freight carrying is "company business," done by work trains, such as the hauling of dirt from cuts or to fills. This is not directly revenue-producing business, and is separately itemized in reports. It will be omitted from comparisons. The trainload may be checked, for very refined analysis, by considering the amount of business done by trains with two or more engines. For this purpose engine-miles may be substituted (but not accurately) for train miles. In comparison of systems, the nature of the traffic and the nature of the country through which the roads pass will have a very material bearing on trainloads and the like.

CHAPTER XXI

RAILROAD BONDS: EARNING POWER AND THE INCOME ACCOUNT

783. To those accustomed to look upon a railroad as a huge and complicated transportation mechanism, the success or failure of which is dependent, as in any other mechanism, on the efficiency of the many parts, earning power immediately becomes thought of in relation to these parts. Gross earnings are reduced to units of mileage pure and simple, or to train mileage, or car mileage, or what not, in accordance with the point of view and the object in hand. Among the traffic averages for American roads, reported by the Interstate Commerce Commission, are the following which relate to earnings per mile of road:

Passenger service train revenue,
Freight service train revenue,
Operating revenue,
Operating expense,
Net operating revenue (or deficit).

784. But earnings are related to capital as well as to operating costs, and they are more easily analyzed in relation to ledger and balance sheet, and this method of analysis is the more necessary in railroading because of the complex intercorporate relations that now obtain among transportation companies.

785. It is one of the great services rendered by the Commission that they now require of the roads a system of accounting almost uniform in its principal items, and of such nature as to be intelligible to all. Unfortunately, to achieve this result, it was deemed necessary to alter somewhat the terminology and classifications of the accounts as customarily rendered the public in the past. Under the circumstances it seems best to interpret the account as itemized by the Commission. The items are as follows:

786. THE INCOME ACCOUNT FOR OPERATING ROADS

Rail operations,

Operating revenues,

Operating expenses,

Net operating revenue,

Outside operations,¹

Revenues,

Expenses,

Net revenues from outside operations,

Total net revenue,

Taxes accrued,

Operating income,

Other income,

Gross corporate income,

Deductions from gross corporate income,

Net corporate income

Disposition of net corporate income,

Dividends declared from current income,

Additions and betterments charged to income,

Appropriations to reserves and miscellaneous items,

Total,

Balance to credit of profit and loss,

787. The simpler form of income account, with which, in one or another of its variations, most people are more familiar, is now given, with the corresponding items in the Commission's account:

Gross earnings.....	{	Operating revenues
		Revenues from outside operations
Operating expenses.....	{	Operating expenses
		Expenses of outside operations

¹ For a definition of Outside Operations see § 822.

Net earnings.....	Total net revenue
Other income.....	Other income
Total net income.....	Gross corporate income
Fixed charges.....	Deductions from gross corporate income
Surplus.....	Net corporate income

788. Sometimes certain kinds of *outside operations* did not find their way into the income account except as *net revenue* included in *other income*. Other differences between the old and the new form of accounting will be taken up in the comments on these items.

789. **Operating Revenues.** Operating revenues, or gross earnings, refer to income derived for the most part from the actual movement of traffic (rail operations). Its character, and the relative importance of its component parts, in 1908 will be seen from the analysis

Item	Proportion to total operating revenues (per cent.)
Freight revenue	69.15
Passenger revenue	23.68
Mail revenue	2.03
Express revenue	2.45
Excess baggage revenue and milk revenue.....	.54
Parlor and chair car revenue and other passenger revenue .....	.14
Switching revenue.....	.82
Special service train revenue and miscellaneous trans- portation revenue .....	.30
Total revenue from operations other than transporta- tion .....	.89
Unclassified .....	..
Total	100.00

790. The percentage figures in this and the subsequent tables cannot be used as standards of favorable or invidious comparison with any one road. They represent merely the average importance of various items, and therefore the degree of attention they should receive from the investor. Since freight revenue is ordinarily more lucrative than passenger, and is the source of more than two-thirds of all operating revenues, one can realize from this percentage

table why the railroad and the public mind is so much more concerned with freight tariffs than with passenger.

791. At this point we are reminded again of the importance of a previous investigation of the physical characteristics of the road: of the relative volume of the different kinds of traffic, and the probable future change in their ratios, due for example to the opening up of a section, or the further development of it. The kind of traffic largely determines the transportation rate, and the rate times the density of this traffic determines the revenue. Since density is the volume of business reduced to a mileage basis, and the rate is the charge per mile, it is necessary to study operating revenues, also, on a mileage basis. But there is little significance in the bald fact that one road has greater gross earnings per mile than another, unless they are operating under very similar traffic conditions.

792. Since in this country the general trend of rates for years has been downward or stationary, and that of materials and labor has been upward, it follows that the general increase in earnings per mile has been accomplished only by a more intense traffic, which, in turn, is the result of an increased operating efficiency applied to a growing volume of business. The course of argument recently pursued by counsel representing, at Washington, those who are opposed to increase in freight tariffs fails to show an appreciation of this fact. If the railroads exhibit imperfect organization and imperfect business development, especially along the line of operating economies, it is yet to be proved that their efficiency has not grown as rapidly as business efficiency in general, to put the case very mildly.

793. Operating revenues may profitably be considered not only historically, on a mileage and train mileage basis, to realize the volume of earnings and the efficiency of operation, respectively, but also in relation to net capitalization. But this study must be left until we consider what is net capitalization.

794. Operating Expenses. Before discussing the nature of operating expenses a word of caution as to comparisons of present with past years. Whereas, formerly the hire of equipment was frequently included under this head, when that item was a debit, and also taxes, now these items must be accounted for elsewhere. Proper allowances, therefore, often will have to be made.

795. Railroads are as helpless as other business organizations in attempting to stop the ebb of earnings in business depression. To maintain adequate surplus their chief resource is in curtailing and

EARNING POWER AND THE INCOME ACCOUNT 267

redirecting expenses. Interest charges and taxes are virtually fixed; dividends, if any, may be reduced or passed; but dividend reduction may be politically unwise, and may impair credit. Operating expenses, however, will, of themselves, rise and fall to some extent with the amount of work performed. Because of the peculiar makeup of this account, the rise and fall may be intensified and thus admit great savings in lean years. Railroads now report to the Commission under the following heads:

Item	Proportion to total operating expenses (per cent.)
Maintenance of way and structures.....	19.73
Maintenance of equipment.....	22.06
Traffic expenses	2.89
Transportation expenses	52.00
General expenses	3.31
Unclassified .....	.01
Total	<u>100.00</u>

796. Maintenance of way and structures involves the annual expenses for

- a—roadway and track,
- b—ties,
- c—buildings, fixtures, and grounds,
- d—bridges, trestles, and culverts,
- e—other track material,
- f—superintendence,
- g—rails,
- h—miscellaneous items kindred to these.

797. Maintenance of equipment comprises charges for

- a—repairs, renewals, and depreciation of locomotives, passenger and freight cars, and floating equipment,
- b—superintendence,
- c—shop machinery and tools,
- d—miscellaneous.

798. The principal items of traffic expenses are

- a—outside agencies,
- b—superintendence,
- c—advertising,
- d—stationery and printing.

Traffic expenses bear such a small percentage to the whole that they need no careful scrutiny.

799. Transportation expenses, on the other hand, are the heaviest of all six divisions. They include

- a—salaries and wages of train and yard men,
- b—fuel and other supplies for rolling stock,
- c—expenses of communication by signal, telephone, and telegraph,
- d—loss and damage by freight, and injuries to persons,
- e—other expenses.

800. The general expenses, relatively light, pertain to administration, insurance, legal matters, etc.

801. The fact that railroading is, in essence, transportation, or movement, and that therefore a large part of its own property is always in motion, or directly aiding and supporting motion, attaches an importance to the maintenance account that is lacking to the maintenance account of gas or water companies, or water power companies, which have no corresponding wear and tear to their equipment.

802. **The Maintenance Items.** Those who intend to study operating expenses will go directly to the report or to the statement submitted to the Commission, in which each item is minutely subdivided. The classification of operating expenses of large roads provides for 123 primary accounts. But the synopsis given above will show that the object sought in examining operating expenses at all is best found in the two Maintenance accounts, Maintenance of Way and Maintenance of Equipment. They have an interest for us far exceeding that of the Traffic, Transportation, or General accounts, because there is far greater opportunity to skimp or surcharge expenditures upon the road and rolling stock, than there is upon wages, salary, insurance, etc. Current building, and the replacement of old stock with new and superior, may be postponed if retrenchment is called for; but men must be paid at pretty much the same rate in good and in hard times, and the number that can be laid off or discharged is a small part of the whole (about 10 per cent.), and at best receives inferior wages. 25 to 30 per cent. of maintenance may be withheld for a period, but hardly more than 12 to 15 per cent. may be cut from the conduct of transportation.

803. Or, as far as the past is concerned, when business has been good, equipment may have been purchased and charged to operation, and work that is entirely extension may have been undertaken on

a scale that properly demands a charge to capital account, but this charge also may have been put under operating costs, and thus have concealed true earnings. We look therefore to the maintenance items for the clearest sign of the policy of the management.

804. It is to the everlasting credit of American railroading that of late years the maintenance accounts have been surcharged. Herein our policy is distinguished from the British, which capitalizes almost every expenditure not in ordinary course of business operation. As the result English roads do business on weakly extended credit. Their borrowing capacity is small. But the credit of American roads is constantly bettering, and their gross earnings are an increasing percentage of their net capital.

805. Now, however, the Interstate Commerce Commission takes the stand that the accounting interests of the management and of the investor are not at one with those of the public. This matter properly comes in the discussion of the capital account. Its relation to maintenance is that these charges should, in the future, more truly portray expenditures that are actually maintenance, in order that the word maintenance may not be a misnomer. Expenditures that are fundamentally capital shall hereafter be accredited to capital.

806. In comparing present with past maintenance accounts, one ought not forget the increased cost of material commodities and labor in this country, and make the necessary allowance for the decreased purchasing power of present appropriations.

807. Maintenance of Way. It is not necessary here to enlarge upon the two maintenance accounts. The Maintenance of Way is the more important since it gives greater play to the management's policy. The amount of this maintenance per mile is affected, but not determined, by the traffic density. In comparison, a density on one road of twice that on another would by no means imply a double maintenance of way. Maintenance is somewhat affected by mileage earnings also, but largely on the principle that it pays to put back a definite portion, say 30 or 35 per cent., of what is taken out.

808. Maintenance of Way is more directly affected by the amount of extra track and the nature of this track; whether it is extra main track, or passing track, or sidings. The topography of the country is a very important factor, for heavy grades, many curves and bridges, and storm-swept stretches are serious burdens in the

annual budget. Flat, open, sparsely settled country, with its long freight hauls on single track, and scant passenger business, implies a minimum of upkeep which is impossible in suburban territory, with its preponderant, two to four-track passenger business, frequent stops, expensive stations, and many-tracked, busy terminals. In other words, to judge maintenance we must know the property.

809. Because of such conditions as these it is held that the cost to maintain a Southern or Western single track road approximates \$1,000 a mile, whereas about \$1,500 is necessary per mile of single main track for trunk lines.

810. Even when we have made all proper allowance for physical conditions, and are prepared to compare two or more roads on a mileage basis, we must allow again for any past difference in accounting methods: for in cases in which extensions have been capitalized, or financed from special improvement accounts, the burden of maintenance ought to be lighter than otherwise.

811. **Maintenance of Equipment.** In comparing the equipment accounts of two roads, apart from any other items of operating expenses, such minor costs as "shop machinery and tools" may be neglected or prorated among the locomotive and car units. The investor must remember, too, that the railroads have not been held to uniform charges for the depreciation of equipment, therefore the fairest way in comparison is to omit these also, or else reduce them to a common percentage.

812. The relation of the various types of traffic to Maintenance of Equipment is somewhat perplexing. The cost and upkeep of coal and ore cars, and flat cars, is less than that of box cars, which carry a higher class of freight. But, on the other hand, it requires greater density of traffic, and therefore greater maintenance of equipment, to get the same operating revenue from low grade freight as from high grade.

813. **Traffic, Transportation, and General Expenses.** The three items of operating expenses that remain comparatively fixed, are Traffic, Transportation, and General Expenses. Prior to 1907 these three charges, with Expenses of Outside Operations, were under the head of Conducting Transportation, General Expenses, etc. By regrouping, one can make comparison with past years.

814. Traffic and General Expenses, the elements of which have been outlined, are such a small part of this group, and are such a

constant quantity under varying business conditions, that they may be passed without further comment.

815. **Transportation Expenses**, comprising about half of all operating expenses, are worthy of careful study. This account is in closest touch with the immediate cost of shipment and train movement. Therefore it should be reduced to a mileage basis. The greater the traffic density, the heavier the engine and train mileage, and the train and carload. Therefore, so far as transportation expenses can vary, they move with the rise and fall of traffic density.

816. But as respects Operating Revenues, they are almost a fixed charge, and precede in point of time the payment of taxes, and in point of law as well as time, the payment of interest. The amount remaining after payment of Traffic, Transportation, and General Expenses, Taxes, Interest, and Rentals, determines the degree of liberality with which the maintenance accounts may be kept up,—fattened against the famine of coming lean years.

817. Comparisons of what may be called the Transportation Ratio, or Ratio of Transportation Expenses to Operating Revenues, are perfectly valid between roads carrying the same kind of traffic. A low ratio indicates either efficiency of operation or high rates, or both. The average ratio of all roads for the fiscal year 1908 was about 36 per cent.

818. **The Operating Ratio.** The relation that Operating Expenses in their entirety bear to Gross Earnings is called the Operating Ratio. It is commonly viewed as an index of operating economy, but its value for any purpose is small. Other things being equal, a low ratio is preferable to a high; but the figure is, or has been, largely a booking accident, depending on the liberality of the maintenance, and whether improvements come from Operating Expenses or from Surplus. A low Operating Ratio, however, does not necessarily mean a skimping of maintenance; it may mean simply a dense traffic at good rates, resulting in heavy mileage earnings.

For the curious it may be stated that the Operating Ratio of all interstate roads, considered as a system, was somewhat less than 70 per cent. in 1908.

819. **Net Operating Revenue.** The third item in the Income Account, the residue after Operating Expenses have been deducted from Operating Revenues, is officially called Net Operating Revenue, but vulgarly, Net Earnings. To be more exact, Net Earnings com-

monly includes Net Revenues from Outside Operation, if there are any such. An historical comparison of Net Earnings, either in sum or per mile operated, is misleading except after an analysis of the Maintenance charges, because these, we have found, are elastic accounts, and can be surcharged or curtailed, according to the needs of the road or the policy of its management.

820. There is a special temptation to skimp maintenance, or "skin the road" as it is called, when gross revenues are declining in a period of business depression. By so doing the showing of the Net Revenue may be upheld. There is some natural lessening of all operating costs when the movement of traffic falls off. But ordinarily, unless the maintenance accounts have been surcharged in good years, they should not decline in greater ratio than gross earnings in poor years, simply to bolster a diminishing Net Revenue.

821. Although Net Operating Revenue represents, in theory, the profit-producing power of the railroad as a carrier, yet there are two other accounts that contribute to the total revenues and help to pay expenses: Revenues from Outside Operations, and Other Income.

822. **Outside Operations.** Outside Operations (revenues, expenses, and net) are sufficiently described by the Commission: "Previous reports have included the revenues and expenses of outside operations in the general rail statement. By outside operations are meant operations which are undertaken by the carriers, but which are not directly incident to transportation by rail, the inclusion of which with railway transactions would impair the accuracy of statistical exhibits." Objects of outside operation are grain elevators, storage warehouses, restaurant and hotel systems, etc., etc.

823. In the year 1908, Outside Revenues were about 2 per cent. of the amount of rail revenues, and Outside Expenses $2\frac{1}{2}$ per cent. of the amount of rail expenses. The exclusion from Rail Operations seems fairly justifiable on the ground mentioned, although it certainly causes confusion to those not familiar with railroad accounts. By the separation we get a truer rail operating ratio (just given above as about 70 per cent.), because the outside operating ratio is so high,—namely over 87 per cent.

824. **Total Net Revenue.** The sum of the Net Revenues from Rail and Outside Operations is now called Total Net Revenue. In those roads of which the reports formerly included Outside Operations under Rail, it strictly corresponds to Net Earnings.

825. Taxes Accrued. By Taxes Accrued is meant that portion of the year's taxes which accrues during the fiscal year. Except for new tax items it is practically synonymous with the taxes of the fiscal year. Again we refer to the Commission's report:

"The place of taxes in the Income Account statements comes immediately after the declaration of the net revenue from operations. The amount of this payment is in no way under the control of the carrier, and for that reason is deducted before arriving at the figure which represents the amount transferred to the corporation for the satisfaction of its contracts, for the payment of interest on its obligations, or for other corporate purposes. It should be distinctly understood that the location of taxes in the income account statement does not mean that taxes are classified as operating expenses."

This last sentence is a reference to the fact that "Operating Expenses and Taxes" was a former common method of accounting these two items.

826. Operating Income. Operating Income is merely Total Net Revenue less Taxes Accrued.

827. Other Income. An analysis of Other Income will show that very much more than half of it comes from dividends declared on stocks owned or controlled. The other two largest amounts come from interest accrued on funded debt owned or controlled, and interest on other securities, loans, and accounts. This suggests the reason why this item Other Income has assumed an importance undreamed of fifteen years ago. It represents in the Income Account what the Investment Account of the Balance Sheet represents: a financial aspect of the "community of interest."

828. When we learn that only 70 per cent. of the Gross Corporate Income (Total Net Revenue) is derived from operations, and 30 per cent. from securities owned (plus credit balances from rentals, profits from separately operated properties—those minor things which compose Other Income), the necessity for investigating these securities becomes apparent. We must come to some conclusion as to how "fixed" this other income is: what portion of it can be trusted to persist without diminution through all kinds of financial weather; and from what portion there are good chances of increase with the development of the property they represent.

829. To answer these questions we are led to the corresponding capital account in the Balance Sheet: Stocks and Bonds Owned. A comparison of the two accounts gives us an idea of the approximate fairness of the valuation placed upon Securities Owned in the Balance Sheet.

830. Gross Corporate Income. Gross Corporate Income is better known and accurately described as Total Net Income. It is the sum of Operating and Other Income, and the direct sources from which payments are made for all fixed charges.

831. Deductions from Gross Corporate Income: Fixed Charges. Fixed Charges (now technically called Deductions from Gross Corporate Income) are itemized in the reports to the Commission as follows:

Item	Proportion to Total Operating Revenues (per cent.), 1906 ¹
Rents accrued for lease of other roads.....	21
Hire of equipment—balance.....	4
Joint facilities	4
Miscellaneous rents	1
Separately operated properties—loss.....	..
Interest accrued on funded debt.....	60
Other interest	6
Sinking funds chargeable to income.....	1
Other deductions	3
Total	100

Comparisons of the fixed charges thus constituted with the past years of the given road, or other roads, may be somewhat impaired unless allowance is made for the fact that taxes were frequently incorporated in this account, and that hire of equipment, including serial payments, frequently was not. We shall mention presently how comparisons may be prejudiced by the sinking fund items. The discussion cannot have been followed thus far without realizing the immense service of the Interstate Commerce Commission to the study of railroad finance in ordering the accounting items and making them uniform.

832. The degree of "fixedness" of the several items in the charge is varying. If *inevitableness* has been the essence of the account, taxes would not have been removed. The settlement of them may be delayed, but whatever happens they must be paid. Many of the rental items, notably the hire, and what is really the serial payment, of equipment will ordinarily be taken care of before interest. In-

¹ The table of proportions has been added to the Report that the average relative importance of the several charges may appear.

terest, in turn, will be met before appropriations are made to sinking funds. A trustee for bondholders will not be so foolish as to throw a road into the hands of receivers and break the price of the bonds, simply to obtain his sinking fund.

833. It will be seen that interest and the funded and floating debt comprise about 65 per cent. of all fixed charges. Interest, like taxes, rentals, and guarantees, should include everything accrued to the end of the fiscal period. Roads of strong credit with old, high-interest-bearing issues soon to mature, or with notes which are to be turned into secured loans, have a prospective saving in this account that is sometimes worth consideration.

834. Rentals of Leased Roads (including guaranteed dividends, etc.) and Joint Facilities take up one-quarter of the Fixed Charges. The importance of these items grows with the consolidation of companies and the development of intercorporate relations. Rentals of lines leased from other corporations represent an element of risk beyond their mere charge against income. Undertaken to obtain traffic advantage, usually at a time when the surplusage of the leased lines more than met the rentals or guarantees, a lessening of traffic in hard times may leave debit balances. The study that should be devoted to the rental account of any road depends on the relative drain of the item. The New York Central spends more money annually in rentals than in interest on its funded debt.

835. A generation ago the sinking fund item was no such trivial matter as 1 per cent. of the obligatory charges; but experience has demonstrated that money is more wisely appropriated if it is not sequestered in special funds, but is returned immediately to the road in heavier maintenance, or more extensive improvements, with trust in the increased earnings and better credit thus acquired, to refund the issue at maturity in a general scheme of debt-consolidation. But this does not apply to bond issues which do not create property that can be charged to capital account, or which do not create a permanently greater earning capacity.

836. The principle does not apply, moreover, to issues of public service corporation bonds generally, because of the comparative uncertainty of their refunding opportunities, due to a less firmly established banking (as distinguished from commercial) credit.

837. Some roads with old debts, or serial loans, viz., Erie, Pennsylvania, and Burlington, have considerable sinking funds chargeable to income. These accounts will rapidly diminish; but since they lessen the interest charge, and are as much a credit as a debit,

they should be taken into account in comparison with the charges of other roads not so circumstanced.

838. To return to the fixed charges as a whole: a reduction of these charges to a mileage basis is desirable and even necessary for any proper comprehension of the annual burden. But it does not avail to compare two charges so reduced except with reference to gross and net earnings, and to the flexible accounts, Maintenance and Surplus. Further discussion of this matter involves the next account.

839. Net Corporate Income. The deductions of the various fixed charges from Gross Corporate Income (Total Net Income) leaves the Net Corporate Income, commonly called Surplus. It is the amount placed at the disposal of the boards of directors for the payment of dividends and other corporate expenditures mentioned in the Income Account. Surplus may be defined as that part of the annual income of a road which is not necessary to the immediate conduct of the business or to the payment of its current obligations. More briefly still, it is the difference between the current income and the necessary current outgo. It therefore represents net profits after all business, just as net earnings represent net operating profit.

840. There is no better illustration of the essentially false statements possible in railroad reports when not checked by governmental supervision than that furnished by the surplus account. Surely one would suppose that the previous items which determine surplus were strictly cash amounts. Yet railroads have reported surpluses amply sufficient for dividends and have been obliged to borrow money to pay these dividends, and to conduct the business.

841. The Margin and Factor of Safety. If gross earnings fall off, and operating and fixed charges do not correspondingly decline, the cost of doing business will leave a narrower margin of profit. As costs encroach upon profit the financial position of the road weakens. The surplus, then, or margin of profit, is the Margin of Safety, a quantitative matter, of small statistical importance except in relation to income, gross and net. This relation expresses the more important thing, the Factor of Safety, which is the *ratio* of this margin of safety, or surplus, to the Total Net Income. When the ratio is 50 per cent. or more, the interest on the bonds is considered very secure.

842. The Factor of Safety, unfortunately, is not an accurate index of safety at all. To be sure, in any one road a large factor, or a large surplus, is better than a small; but, simply as a matter

of accounting, the bond interest of a road with a 55 per cent. Factor of Safety may be less secure than that of a road with a 45 per cent. Factor, for the surplus of the first road might be such a small proportion of the gross earnings that a serious decline in traffic might wipe it out; whereas, assuming that all charges remained the same, a similar decline in gross earnings on the second road, with its surplus larger, relative to its gross, might not extinguish that surplus.

843. All considerations like this are purely a matter of arithmetic. When government direction of railroad affairs has achieved a thorough uniformity in accounting, especially in the two Maintenance charges, undoubtedly a more significant Factor of Safety will be devised.

844. It seems to the writer that a truer factor may be reasoned out in this way: The maximum of business safety conceivable (100 per cent.) is attained when there are no operating expenses of any kind. The Surplus is the difference between the total earnings and all necessary expenses. It would be 100 per cent. in the case of a company operating without any expense.

845. By necessary expenses are meant all the charges that in theory at least are necessary to the immediate conduct of the railroad business and to the payment of current obligations,—i.e. Expenses of Rail and Outside Operations, Taxes, and Fixed Charges. Although Operating Expenses and Taxes are not altogether of the nature of fixed charges, nevertheless they are *obligatory*, as stated previously, and their payment is even more immediately necessary than the payment of fixed charges, to keep the road from bankruptcy.

846. There would be no safety at all (0 per cent.) if necessary expenses were equal to, or greater than, earnings in any year. In other words, from the standpoint of the Income Account, the Factor of Safety is 0, if there is no surplus for the year, as distinguished from accumulated surplus. Similarly, if necessary expenses are one-half of earnings, Surplus is one-half of earnings and the Factor is 50 per cent.

847. The present Factor of Safety is a misnomer. The maximum of safety is not reached when Surplus is the same amount as (100 per cent. of) the Net Earnings. This is merely the condition when the company has no fixed charges. All charges should be eliminated before the 100 per cent. is attained. Therefore the Ratio of Surplus to all earnings is the true factor, rather than the ratio of Surplus to Total Net Income.

848. Any one who is making an independent study of railroad reports will not be satisfied with accepting the amount of the Surplus as it now stands. Although the income statement does not readily show the fact, the investigator will be mindful that the nominal surplus is the difference between the Revenues from Operation and Other Income, on the one hand, and Operating Expenses, Fixed Charges, and Taxes, on the other. If expenses were as accurately tabulated as earnings this would be sufficient. But we have learned that sometimes there is an undercharge, and frequently there is an overcharge in the report of Operating Expenses—and that most of the misrepresentation occurs in the two Maintenance accounts, but some of it in the Transportation account. The overcharge, or undercharge, is that sum which is more or less, respectively, than sufficient to keep and run the property on a par with its competitors which operate under like conditions.

849. For the fiscal year ending June 30, 1908 (to which we have confined ourselves as a matter of convenience), American operating roads, considered as a system, report a total of fixed or semi-fixed expenditures of \$2,715,087,364, and consequently a surplus of \$395,902,474.¹ It is admitted that American maintenance charges, as a whole, are more than ample. Hence, although conditions for that year are more favorable than may obtain over a long period of years, the Factor of Safety obtained from these figures may not be too low for a standard. It is 15 per cent.

The general tenor of these remarks on the Factor of Safety applies with equal force to the income accounts of public service and industrial corporations.

850. **Disposal of Net Corporate Income or Surplus.** It is just as necessary to scrutinize the disposition of Surplus Earnings as it is any of the other accounts. Surplus Earnings is the amount placed at the disposal of directors for the payment of the dividends and other corporate expenditures mentioned in the Income Account. In want of a balance there is, of course, a deficit. The balance may be allotted as follows:

- Dividends declared from current income,
- Additions and betterments charged to income,
- Appropriations to reserves and miscellaneous items,
- Balance to credit of profit and loss.

¹ Allows for a "Net Deficit" of \$1,000 in an account in which the gross revenues and expenses were not reported.

851. The Report of the Commission for 1908 says: "In addition to the dividends declared from Current Income, dividends to the amount of \$57,733,808 were declared out of the surplus accumulated from past years, making a total for dividends declared by operating companies of \$329,062,261. It is not known what motives carriers may have for declaring dividends out of surplus rather than out of current income, but it is evident that to the extent of the dividends declared out of accumulated surplus the balance carried forward to profit and loss is overstated, if that amount is accepted as the measurement of the increase in the undivided surplus resulting from the year's operations."

852. As to what part of surplus should be spent in dividends, it depends on the method of booking and on the physical condition of the property. A heavily-padded maintenance account, and the pink of physical condition are, in themselves, real reserves, and can be drawn on, negatively, by reduction in charges for maintenance. If most betterments and improvements are drawn directly out of surplus, a smaller part of this account can safely be devoted to dividends.

853. In the minds of many, Pennsylvania's primacy among railroads is due to her old-time policy of "a dollar for improvements for every dollar of dividends." It is the same sort of policy that has placed the securities of the United States Steel Corporation upon a sound investment basis within a few years.

The railroad companies are still too many that do not appear to have any convictions as to the need of building up a surplus reserve in cash or quick assets against the emergency of a financial crisis.

854. The Appropriations to Reserve and Miscellaneous Items may need some division, for it does not all mean equity for the bondholder. Charges against the company that do not find convenient lodgment elsewhere are settled in bookkeeping adjustment by inclusion under Miscellaneous Items.

CHAPTER XXII

RAILROAD BONDS: VALUATION AND THE CAPITAL ACCOUNT

855. From the bondholders' point of view it is not enough that a railroad is well connected, and efficiently operated and maintained, and is obtaining satisfactory rates from a heavy volume of traffic. The Erie is in this very position; but Erie securities do not meet with especial favor.

856. The analysis of the Income Account in the preceding chapter left us with an idea of the other requirement of good credit, which can be expressed in terms of income as a sufficient margin of profit above all necessary or advisable current expenses to meet the mandatory charges of interest, rentals, guaranteed dividends, and the like. Since these charges represent the price paid for the use of capital, we take the final step in our investment study when we investigate capital itself, both borrowed and proprietary, and learn as much as may be learned of the loaned capital and the capital estate in general, and the relation the one bears to the other, just as we learned the relation of the fixed charges (the cost of loan capital) to earnings (the product of the capital estate). The official source for this information is the Capital Account of the annual report. The Capital Account is the railway's valuation of its more or less permanent assets and liabilities.

857. The Basis of Valuation. Although many are not aware of the fact, every one is deeply concerned in the correctness of the railroads' valuation. No one will gainsay that the public, and therefore the Government, are willing that American railroads should earn a fair return on their value. It is the public, however, which pays this return, every time that it buys a railroad ticket, or an article that has been on a freight car. Hence the public is beginning to care whether American railroads are worth \$20,000,000,000, or \$25,000,000,000, or only \$15,000,000,000.

858. The Interstate Commerce Commission, in regulating railroad business on the one hand, and in forming public opinion on the

other, is so potent that naturally we first turn to the Commission for an expression of its attitude toward railway valuation.

The Commission takes the stand that valuation means any of three things according as we seek to conserve the interest of (a) the management, (b) the investor, or (c) the public.

859. The Commission holds that it is the interest of the management to maintain and increase the credit of the property, which is accomplished by widening "the margin between the value of the property to which the corporation has title and the amount of securities outstanding on the property." This has been accomplished in book-keeping by overcharging expenses, etc., especially the maintenance accounts. By so widening the margin fresh capital is more easily raised in time of need. Therefore the management values the road in terms of securities outstanding; "and, as long as balance sheets are constructed with exclusive regard to the interest of the management, it will not be possible to read from them the investment cost of the property."

860. But "the interest of the stockholder . . . so far as the accounting record of charges to property accounts is concerned, is at variance with that of the management. . . . The stockholder is the residuary proprietor of all the company's assets not covered by outstanding obligations, and it is to his interest that the value of the property should be increased without a corresponding increase in the number of shares which have a proprietary claim upon the property. . . . The stockholder's interest is expressed in valuation. . . . He desires also to have as high a statement of the property accounts as the commercial conditions of the business warrant, in order that he may protect the value of his investment by showing how great is the value of the property used in rendering the service for which the public pays."

861. "The interest of the public . . . rests upon the fact that a reasonable rate for transportation services is a rate which contributes a reasonable return upon necessary investments, and a satisfactory balance sheet from the public point of view is one which shows what has been actually invested in the property. The public, therefore, has the right to demand that the property ledger should record every item of property which an appraiser would find, should an appraisement be undertaken, and from the point of view of the public at least, the figures entered upon the property ledger against the several items of property there recorded should be the amount of money actually spent in creating the property,

rather than, as the management desires, the amount of securities issued, or, as the stockholder desires, the commercial valuation of the property."

862. In summary, the interest of the management is to keep the capitalization down; but of the stockholder (here made representative of *investing* interests) to put the commercial valuation up; and of the public, to have as valuation "the money actually spent in creating the property."

863. The Commission naturally sympathizes with the interest of the public; and therefore, under an order of June 21, 1909, has issued a form of General Balance Sheet statement which is hoped to show an "investment" or original-cost valuation of railroad property. The result of this step is that future balance sheets cannot be compared with those of the past without more careful dissection than most people care to attempt. But the loss will more than be made up by the uniformity in statement which will govern hereafter, making possible valid comparisons of a company's future annual statements, and of the future statements of one company with another. As statements have been, with no informing principle, *prima facie* comparisons of two or more companies for the same years have usually been almost worthless.

864. In the opinion of the writer the three interests described are not so much at variance as might be thought from the wording of the commission's report.

865. Does the public believe that railroad managements have endeavored to keep nominal capitalization below true property value? One of the great railroad companies not so very many years ago declared a stock dividend of 100 per cent. This necessitated a doubling of the Capital Stock item in the Liabilities. To offset this in the Assets the management increased the item Cost of the Road by as many millions as the stock dividend. There is very much point in this as an argument against the old time balance sheet, but hardly any against concealed equities.

866. It is at variance with the fundamental principles of this work to represent in the stockholder the "interest of the investor." The stockholder is the railroad speculator, *per excellence*. The true investment interest in railroads is the bondholder's interest.

867. But be that as it may, have not all security holders very much the same interest as the management, in the method of valuation? Of the management the Commission says: "The chief aim of those who administer the property is to maintain the credit

of the business placed in their hands." Why do they wish to maintain this credit? To get more capital when advisable, and on good terms. From whom? From bondholders and stockholders, old and new. And what do security holders demand in return for money invested or speculated in the property? As wide as possible a "margin between the value of the property . . . and the amount of securities outstanding against the property"—just what the Commission says the management wants to show.

868. Whether or not the interests of management and investor are identical, there can be no question that a part of the public thinks its interest is different. The Commission has not endeavored to prove that the interest of the management or of the investor is not for the good of all, or that what the public thinks is its interest really makes for equitable dealing. The Commission, as the servant of the public, merely purposes to have future balance sheets record what a large part of the public now demand: "the amount of money actually spent in creating the property, rather than, as the management desires, the amount of securities issued, or, as the stockholder desires, the commercial valuation of the property."

869. A retroactive, original-cost valuation is manifestly unjust, for it would deprive the railroads of their share of advantage in the general uplift of property values due to our great growth in prosperity, and in the particular uplift in the territories they serve which they have foreseen, anticipated, and helped to produce.

870. Replacement valuation is unfair, for it neglects the original, and perhaps now unknown, cost of experiment and the assumption of risk that were antecedent and necessary to the acquisition or construction of the physical property. It is said that the undertaking of the great Pennsylvania terminal in New York really caused the death of President Cassatt. It is said, also, that the engineering difficulties of the Lucin Cut-off, in the Great Salt Lake, nearly proved unsurmountable, and risked the loss of many millions that already had been spent on the chance of successful outcome.

871. Physical valuation is unfair because it is merely physical valuation; because it does not represent in terms of capital the intangible, but none the less necessary or esteemed property, called "rights," "franchises," "contracts of lease," etc. Referring merely to the legitimate relations between the legislature and the corporation,—are franchises always to be had for the asking? The value of a lease to the lessee, at the time of making, was expressed ap-

proximately by the rental paid or the dividend guaranteed. It probably had no relation to the original cost, and possibly little relation to the cost of physical replacement, if it had been possible to ascertain either. The lessee did not take the lease as an investment in real estate or commodities, but to check, eliminate, or avoid competition that probably was wasteful, or to modify the character of its traffic in order to improve the carload, or for one of a hundred different reasons that may imply perfectly good railroading.

872. The cost of replacement value might easily be more than the lease value. It is not to the point that an independent feeder, running through sparsely settled lands from coal fields, cost \$15,000 a mile to build, if the coal veins petered out. If, after such an event, the feeder were bought for its earnings, the price paid would bear a closer relation to the income account than to the first cost of the feeder. Or, on the other hand, the feeder might be leased for more than its *originated* earnings ever would justify, if it were wanted for its strategic position, as the beginning of a longer line to reach richer land beyond.

873. But furthermore, the value of the leased line may now be distinctly different from what it was when the line was acquired. The capitalization of rental would not show this. The difference between the capitalization of rental and the company's valuation, in the balance sheet, of the securities of this leased line, might be somewhat of a guide to the change in value to the lessor.

874. What is true of the capitalization of leases or leased lines applies equally to all tangible or intangible property of the lessor company. To invalidate the capitalization of earning power, or strategic advantage, because the cost or physical replacement value is less would be a confiscatory act. The capitalization of earning power, rather than mere first cost, has made possible, to be sure, great speculative gains; but these gains have been necessary to attract capital to the speculative risks of the business. Railroad financing has been hazardous, even disastrous; it has required elemental courage of its promoters until well within the memory of all of us. The capitalization of earning power has been at the foundation of railroad finance and of railroad values. If interstate railroading has reached the investment stage, it seems reasonable that hereafter¹ companies should be required to show "investment

¹ As a matter of fact the carriers are required to show "investment cost" of all property acquired since June 30, 1910, that is classifiable as Road and Equipment, or Additions and Betterments, less deductions for property abandoned.

cost" for new construction. This appears to be the attitude of the Commission in promulgating the new balance sheet statement. Statistically, of course, there is immense gain, not only in the resulting uniformity of this account, but from the greater veracity necessary in the returns.

875. The Balance Sheet. The General Balance Sheet is the statement of the company's valuation of its assets and liabilities. These sheets, which, as we said, have varied greatly in their composition, will now exhibit accounts as follows:

Assets—	Liabilities—
Property Investment,	Stock,
Working Assets,	Mortgage, Bonded, and
Accrued Income Not Due,	Secured Debt,
Deferred Debit Items,	Working Liabilities,
Profit and Loss.	Accrued Liabilities Not Due,
	Appropriated Surplus,
	Profit and Loss.

876. Since the Government has issued a pamphlet explanatory of these accounts, it is necessary here only to expound the main principles upon which the valuations are based. Assets and liabilities are always properly divided into Capital and Current. In relating valuation to earnings the Capital items are so much more important than the Current that we may properly confine ourselves to them. The item Property Investment is the only Capital Asset as here divided. (a) Stock, and (b) Mortgage, Bonded, and Secured Debt are the Capital Liabilities, as set forth above.

877. Property Investment. The main items in the property account are Road and Equipment, Securities, and Miscellaneous Investments. The Cost of Road and equipment may have meant little, as we have illustrated. These items have been the dumping ground for offsets to Capital or Current Liabilities that it was not convenient to detail. But since roads are now required to exhibit actual costs of all road and equipment acquired, or General Expenditures made, since 1907, future alterations of these accounts, from year to year invite investigation of the causes and amounts expended, and the source of the funds; whether a sale of securities or a withdrawal from accumulated surplus.

878. An item of Capital Assets hitherto more significant is that of Securities Owned, whether held in the treasury as investment, and carried at cost or book value, or pledged in loan and carried at par.

These securities represent, for the most part, the issues of other companies bought for one or more of the various purposes that may actuate one company to acquire an interest in another. By capitalizing on their merits the several items of Other Income (in the Income Account) that are derived from this capital item of Securities Owned, one forms a fair estimate of the value of these assets. But such a mathematical valuation may not be entirely just to the railroad, for Securities Owned probably have a value to it other than that of an investment, other than that relating to dividend and interest payments. They have an indirect earning power concealed in the gross earnings. Stock ownership, for example, may imply control of the line with resulting diversion of traffic to the leasing company.

879. Miscellaneous Investments ordinarily is not an important account. But if a railroad has a large proprietary interest in mines, manufactures, or business property, that is not represented by securities, but by direct ownership, then some attention should be given the account.

880. The investor need give comparatively little attention to Current Assets, other than to note whether the railroad carries satisfactory balances in cash and virtually liquid funds relative to its needs.

881. Capitalization. The capital liabilities are the various classes of stocks and bonds issued or assumed by the company. The total par value of these securities (and the receiver's certificates, if any) will give the nominal capitalization of the road. All the capitalization, like all the income, figures, should be reduced to a mileage basis for purposes of comparison, either with past years or with other roads.

882. But in addition to these items, some sort of liability valuation must be put on the rentals of various subsidiaries that have been leased and are directly operated, but the securities of which are not included among the capital liabilities; for the earnings of these lines swell the Income Account of the lessor, and therefore the true capital account of the lessor must have its corresponding item. This is generally called the capitalization of rentals.

883. There would be no point in basing this capitalization on the face value of the stocks and bonds of the subsidiaries, because the leases were probably not drawn on such a basis, but rather on earning power. At any rate since we seek the approximately correct capitalization of the parent road to relate it to the road's earn-

ing power, we charge the parent road with the rental cost of subsidiaries capitalized at some rate per cent.

884. Often the rentals are not on a percentage basis at all; sometimes the percentage is based on gross or net earnings from the subsidiary lines; sometimes the percentage is graded to scale, over a period of years. But even when the rental is a definite amount it is not always, if generally, possible to learn what were the capitalization bases which originally determined the amount. For intensive study it is better to use the percentage employed by the company, when that is known. But for broad comparisons a fixed percentage for all rentals, approximately the average rate, will give better results. This may be $4\frac{1}{2}$ or 5 per cent.

885. **Net Capitalization.** By adding the amounts of the capital stock, the funded debt, and the rentals capitalized, we have approximated the gross capitalization of the road. The significance of capitalization is the relation it bears to earning power. To the extent that the asset Securities Owned contributes to income, it should be deducted from the gross capitalization to attain the integrity of the ratio of earnings to capital, for the income it yields has no corresponding capital liability. Gross capitalization then, less the true "investment value" of Securities Owned, yields Net Capitalization.

886. **The Relation of Income to Capital.** A Margin or Factor of Safety may show certain relations between expenses, earnings, and capital, in so far as these items manifest themselves in the Income Account.

In the Income Account capital appears in the form of fixed charges and dividends. The relation of Income to Capital is indirectly expressed in the Income Account by some form of Margin or Factor of Safety. In the Factor of Safety we refer primarily to the safety of the fixed charges. Therefore the Factor of Safety, as commonly understood, is of more immediate interest to the bondholder than to the stockholder.

887. In the Capital Account several relations between earnings and liabilities might well be expressed; but that of most interest, not only to the bondholder, but to all owners of the road's securities or others interested in its welfare, is the ratio that Net Income bears to Net Capitalization. Net Income¹ is the residue after deduction of all expenses except the fixed charges. Operating Ex-

¹ Net Income is used here in its ordinary signification: as synonymous with "Gross Corporate Income," rather than with "Net Corporate Income."

penses, therefore, have been taken into consideration when we determine the Ratio of Net Income to Net Capital.

888. The Income Ratio just described becomes highly significant of the high or low "investment" capitalization per mile. There is some slight meaning to the statement that a certain line is capitalized at \$30,000 per mile, let us say, for if it is of standard steam construction we know that under most advantageous conditions this capitalization represents money expended, and undoubtedly less than the full sum expended. Cost and physical replacement value from this time on are likely to affect railway capitalization more than they have in the past, therefore Absolute Capitalization has its place in railroad study. But Investment Capitalization, or the stock and funded debt, etc., per mile, in relation to Net Income is the index of financial competency, just as the true Factor of Safety is the index for any one year.

889. The Relation of Funded Debt to Capitalization. It is not enough to know the relation of Net Income to Net Capitalization. Although all capitalization is bookkeeping liability, only Funded Debt and Capitalized Rentals are obligatory; Capital Stock is not. The greater the amount of debt, in comparison with property value, the less safe is the property and everything connected with it. Issues of new stock, in these days, usually represent cash put into the property. Since stock is frequently offered at a premium, the money obtained may be inadequately represented by the mere increase in stock capitalization.

890. However, a study of Income Ratio should involve a study of the ratio of Funded Debt and Rentals Capitalized to Capital Stock. A 6 per cent. income ratio may be safer, if bonds are one-third of the capitalization, than an 8 per cent. income ratio when bonds are two-thirds of the capitalization. A company that is lessening the ratio of its obligations to its stock at the rate, perhaps, of 1 per cent. per annum, may be improving its position more radically than if it were lowering its mileage capitalization at the rate of several per cent. per annum.

BOND SECURITY AS AFFECTED BY PRIORITY OF CLAIM

891. After examination of the personnel, the affiliations, and the physical, income, and capital characteristics of the railroad, the investor turns to his bond, to learn from the recital on it, and then from the mortgage or deed of trust to which the recital re-

fers, what is the nature of his claim against the railroad if it should fail to honor the interest or the principal.

892. The Relative Positions of the Various Bond Issues. In previous chapters devoted to the Classification of Bonds an effort was made to show, by definition of a hundred or so bond classes, something of the position of an issue relative to any of the other issues, if both were of the same road. Railroad debt-structure is a mysterious and wonderful thing—much more wonderful than creditable. Precedence of bond issues is as delicate, debatable, and involved as precedence at a state dinner. The only principles of precedence that stand out clearly are those with which every one is familiar. The secured obligations of a corporation are superior to the debenture; lien security is surer than guaranty; lien on realty is stronger than lien on personalty; realty that is merchantable, or that has its own independent earning, makes a better lien than realty that cannot readily be sold or that has earnings dependent upon the cohesion of the entire property. A first mortgage has a better claim than a second; a second than a third; primary liens anticipate secondary liens, and secondary liens anticipate junior liens.¹

893. But even these general truths require modification. When a first mortgage divisional or sectional bond is a direct obligation of the parent operating company, it may be "prior," but nevertheless actually inferior to a general, consolidated, or refunding bond that covers the same mileage as a junior lien, but has a broader claim on the company's earnings and assets than does the divisional first mortgage. But this exception would not hold if the division was absolutely essential to the integrity of the property.

894. We have stated repeatedly that the debentures of certain roads were safer investments than the first mortgage bonds of others. This is tantamount to saying that priority of lien waits upon earnings. Earnings of the entire road are the real touchstone of bond security. It is this thought that underlies the new Factor of Safety suggested. Safety depends on solvency. As long as there is any true Factor of Safety there is solvency. When a road goes bankrupt, those bond issues with the very best claim on the property—bonds that are sure to have their interest met—will lose at least one element of safety, i.e. Security in Liquidation.

¹ The exact incidence and ranking of almost all American railroad mortgages may be found in White and Kemble's *Atlas and Digest of Railroad Mortgages*.

They will not then sell at their intrinsic worth as investments.

895. If reorganization succeeds bankruptcy, and earnings decline to such a degree that interest on a substantial number of issues cannot be paid, an inexperienced bondholder will find that priority of lien in railroad bonds is quite a different thing from priority in real estate mortgages. Let us suppose that this investor is one among a hundred who have part interest in a first mortgage covering an entire division of the road, tributary to the main line. The first mortgage bondholders, on examination, find that the earnings from this division have been sufficient for a long period to pay the interest on the loan. They elect to exercise their legal privilege and foreclose. At the sale they buy in their property with their bonds and wipe out possible stock or junior obligations outstanding.

896. These foreclosing investors have now become speculators, and on most unpromising terms. They have a railroad, while it is running; but after that some scrap and a little real estate. Railroadng is a highly technical business; and bond buyers, as a class, are not railroad men. They find that dismemberment from the trunk line cost them a lot of traffic. Necessary economies are not possible on the smaller unit of transportation. Their road lacks the long-established banking relations, and the better known name. The sale of the road to themselves has brought no working capital. Maintenance must have been neglected before the main road went under, and past insufficiency of upkeep now appears in heavier operating expenses already excessive in the transportation items because of comparatively inexperienced management.

The usual result of this situation is a continuous decline in earnings until the fixed charges can no longer be met, and the bondholders will most heartily wish they hadn't bought the road.

897. Ordinarily, then, continued default on railroad issues means reorganization with capital scaled to meet earnings. The mountain in this case must come to Mohammed. The scaling of capitalisation must be arbitrated and settled on a basis of expediency and equity. Priority of claim will be recognized; the underlying liens may remain untouched; but let no first mortgage bondholder think his entire wants would be satisfied, if by this satisfaction the junior interests would be wiped out, unless it is thought the road and its prior claimants are entirely self-subsistent. Even the holders of common stock are seldom utterly sacri-

ficed. They are permitted to retain an equity, as it were, when no equity exists.

888. It would be misleading to close these comments on railroad bonds, and the nature of their security, by so much thought of default and foreclosure. One has only to follow the lines of investigation suggested here, to realize that in spite of enormous increases in capitalization—in fact because of them—the equities in American railroads are rapidly growing. That is to say, railroad bonds, now safe as a class, are rapidly growing safer. Every year the market price of a larger proportion of them rises or falls, not with the rise or fall in earning power, but with the fall and rise of interest rates. In the financial marts their security is taken for granted; their price is merely a question of investment demand.

CHAPTER XXIII

EQUIPMENT TRUST OBLIGATIONS

899. Origin. About thirty-eight years ago certain railroads of the country that found difficulty in meeting, from their ordinary resources, the requirements of increasing traffic and territorial expansion, conceived a new method for financing a certain portion of their needs. The original capitalizations had largely been converted into terminal structures and facilities, and into roadbeds, against which, being relatively permanent objects for expenditure, long term loans had been contracted. But as the more perishable rolling stock wore out and its replacement became necessary, either from funds on hand, current earnings, or the proceeds of a new loan, the two former expedients appeared undesirable or impracticable to these companies, and yet they were reluctant to increase their regular funded indebtedness; so they arranged with the car-builders to make payment, on delivery of the cars, of from ten to twenty-five per cent. in cash, and the remainder in the form of notes, usually maturing serially over a period of years.

900. The scheme was quick to find favor, for it had excellent bookkeeping features: it kept down the fixed interest charges under the old methods of bookkeeping, for both interest and principal could be met out of income account; it distributed the maturities so that the cars could pay for themselves; and discharged the debt during the life of the cars, that there might be no paying, as it were, for dead horses.

901. To car-builders, however, as to city contractors, cash is more acceptable than a quasi-floating debt. The paper of the railroad companies was often disposed of for what it would bring and thus there became associated with equipment bonds the distrust, born of ignorance, which still clings to this strongest class of railroad security. Originally a deferred liability, an emergency paper, thrust upon reluctant creditors who had a narrow market to liquidate upon, in time every possible safeguard was placed about the bonds, and an attractive interest rate offered, to counteract the disadvantages under which they labored. But this is anticipating.

THE LEGAL HISTORY OF EQUIPMENT TRUST OBLIGATIONS

902. Perhaps the first step toward a more satisfactory order of things was accomplished when those to whom the railroad was indebted for its equipment, withheld the title to it until it was fully paid for. This necessitated the creation of a trust, a trust agreement, and a trustee in whom the title might be temporarily vested. It also necessitated the drawing of a contract of lease under which the railroad, in turn, might be protected in its employment of the borrowed property.

903. The natural thought is that the roads could have bought the cars and given a first mortgage on them, payable in such amount annually, or semi-annually that the serial retirement would be more rapid than the depreciation, and thus accumulate a constantly enlarging equity for the remaining bonds.

But at the time of which we are writing the railroads already had begun to realize the desirability, especially from a market standpoint, of refunding and consolidating their miscellaneous mortgage obligations under a blanket lien. In this way an issue of sufficient size might be created to obtain general recognition and vogue among investors. Confidence was more easily established and the basis obtained for the authorization of a larger amount of bonds if the lien covered, not only all the present property, but that hereafter acquired.

Therefore it was necessary that roads with blanket mortgages of this sort should not own the equipment they acquired if they wished to avail themselves of the advantages of serial payment.

904. In almost all states rolling stock has been held to be personal property. A mortgage on personal property is a chattel mortgage; and in 1873, when the modern equipment obligation may be said to have been invented, it was necessary to record chattel mortgages wherever the property was held, if the mortgagee wished protection against all other claimants.

905. The difficulties and expense are obvious of recording mortgages on rolling stock that is likely to be carried anywhere in the country. In Connecticut, for instance, prudence would have required that the mortgage be recorded in every township. But in most states the county is the recording unit. If the rolling stock were carried into a district in which it was not recorded it would be liable to attachment by any "innocent person" for any unadjusted debt of the railroad, and this attachment would have priority

over the lien securing the equipment bonds. To be sure, the "innocent person" in such a situation would rarely be met, but the burden of the proof of wrongful intent in such an attachment would be upon the railroad. If, however, a trustee holds title, the equipment cannot be seized for the railroad's debts.

906. Since the chattel mortgage plan was undesirable, one might suppose that a trustee, manufacturer, etc., might in the early days have followed the more recent plan of conditional sale, i.e. the sale of the cars to the road might have been made contingent upon the prompt payment of the serial instalments which represent the accrued interest and the matured portion of the principal of the bonds.

907. But this plan, in turn, was usually impractical, for few, if any, states had then enacted statutes of conditional sale. There was general and well-grounded prejudice against such sales of any kind of merchandise, as enabling debtors to withhold recourse to their property by general creditors.

908. *Car Trust Certificates.* The line of least legal resistance therefore was the institution of the car trust based upon the lease principle, the lessor being the manufacturer, or more commonly, a person, company, or association that had taken over the equipment from the manufacturer. Originally the contract of lease was supplemented by lease warrants, which represented in the guise of rental the deferred payments and interest. The lease and the warrants, in the hands of a trustee or of the lessor, represented the immediate assets against which *Car Trust Certificates* or certificates of participation and beneficial interest in the lease were issued. But the ultimate assets were the cars themselves, for the deed of trust authorized the sale of the cars to satisfy the certificate holders, in case the lease was broken.

909. It is evident that the investment principles underlying the early Car Trust Certificates did not differ in essentials from modern practice. Legal refinements, to be sure, were introduced subsequently, but they are matters of minor interest. The lease has been found sufficient without the supplemental warrants, which have been discarded. Of recent years the equipment obligation has been reinforced by the railroad's guaranty of the payments representing principal and interest, indorsed on each certificate. But there has yet to arise an instance when this guaranty has saved money for security holders.

910. The minor legal devices for protecting investors under the

Car Trust plan are so various that misconceptions sometimes obtain. The writer has in mind certain persons and institutions that avail themselves of the obvious advantages of Equipment Bonds but fear to purchase Car Trust Certificates. This is particularly true when the Certificates are the "stock" of associations formed (as in the case of the Pennsylvania, the Gould roads, and the Central of Georgia) simply and solely to purchase equipment and lease it to railroads. If the stock were only bonds! There is so much in a name.

911. When the Car Trust Certificates are association stock, the stock may be limited to the amount covering the lease in hand, or it may be unlimited except in the relation of the amount outstanding at any one time to the value of the equipment; but the certificates will always be in series, each series represented by its own rolling stock, as in the case of equipment bonds.

912. In its purest form, however, the Car Trust Certificate is not stock of an organization, but a share in,—a certificate of beneficial interest in,—a fund raised to purchase the equipment.

913. *Car Trust Bonds.* Since we are using care in distinguishing types of equipment obligations,—more care than the railroads themselves use,—we reserve the term *Car Trust Bonds* for the direct obligations of corporations, (let us say car manufacturers, or leasing associations), as distinguished from mere certificates of interest in the leases. The collateral security for these bonds is a mortgage on the lease of the rolling stock, assigned to the trustee. But since the informing principle of Car Trust Bonds is the lease rather than the conditional sale, they are of the category we have already discussed, rather than that of Equipment Bonds, to which we shall come presently. It is necessary that all leasing persons, associations, and corporations shall have identity distinct from that of the lessee railroad to make the loan valid.

914. The "*Philadelphia Plan.*" Pennsylvania is about the only state that does not recognize the conditional sale as a proper principle for the issuance of equipment bonds. Hence the Car Trust plan has come to be localized in this state, especially in its investment center, Philadelphia, and to be called the "*Philadelphia Plan.*"

915. Pennsylvania is a state of unusual laws. It is the only state in which prevails the statute of mortmain. It is a state in which a conditional sale is not good against creditors of the vendee. A sale of personal property, with change of possession and control,

passes a good title to the vendee, and any agreement of which the purpose is to cover up the sale and preserve a lien in the vendor for the price of the goods is void as against creditors of the vendee.

916. The principle at law is that a creditor presumes that the possession of personal property implies ownership, and he is likely to extend credit on the presumption. But it has been decided that where the possession of personal property has been transferred under an express contract of lease, or other bailment contract, the mere fact that there is superadded an executory agreement for the sale of the property to the transferee upon the payment of a certain price, at any time during bailment, does not convert the bailment into a sale. Therefore, until the execution of the contract by payment of the price, the title remains in the bailor, even as against the bailee's creditors.

917. This, then, is the method used in Pennsylvania to circumvent the law against conditional sales. The principle has been adjudicated there time after time. The legality of the lease is well established.

When the Car Trust Certificates are issued by a Pennsylvania trustee, association, or corporation, and the railroad agrees to pay such issuer money sufficient for any taxes, assessments, etc., which the issuer may be required to pay or deduct from interest or dividends on the certificates, then these certificates are free of state tax to resident owners. By this device any railroad, wherever chartered or operated, can make its car trusts free from state tax in Pennsylvania.

The agreement to pay this tax is not such a hardship to the railroad company as might appear, for although it is the duty of the trustee or the railroad company to pay this tax when the owners are known to be residents of the state, yet the trustee or company is not obligated, and it is not customary, to inquire as to the residence of the holder of a coupon presented for payment.

918. **Equipment Bonds or Notes.** The other form of equipment obligation is called Equipment Bonds, or with equal propriety, because of the shortness of average standard duration (5½ years), Equipment Notes. Car Trust Certificates and Car Trust Bonds are not synonymous terms; Equipment Bonds and Equipment Notes are.

919. Whereas Car Trusts are issued by persons, associations, or trustees, and are secured by deposit of the contract of lease, in trust, and are guaranteed usually by the railroad, Equipment Bonds

are usually issued by the railroad, and are secured by a lien on the contract of conditional sale.

920. The transition from a certificate of beneficial interest in a contract of lease (the Car Trust) to a direct railroad obligation secured by chattel mortgage on rolling stock (the Equipment Bond), has been gradual. The disuse of lease warrants, the supplemental railroad guaranty, the substitution of a formal obligation of the lessor for the certificate of interest in the lease,—these mark the initial stages of the change.

921. The incentive for this change is the fact that the lease is an obvious evasion of the law. In most states the courts have regularly held that where the plain intent and purpose is a conditional sale, one cannot avoid the sale by calling it a lease. The practical difficulties of making conditional sales are the difficulties encountered in recording chattel mortgages. To avoid multiplicity of registration most states have passed equipment statutes, like railroad mortgage statutes, permitting a single act of registration at the state capital, rather than in the many registration districts.¹

922. As conditional sales of equipment have been facilitated by legislation the indenture of lease has slowly given way to the conditional sale, although the inertia and timidity of the legal mind have not yet, in all cases, rid the trust deed of the lease idea. So the parties to the agreement still may be termed the Railroad and the *Vendors*, but the equipment may be designated as transferred to the trustee for *lease* to the Railroad.

THE PRESENT LEGAL STATUS OF EQUIPMENT OBLIGATIONS

923. Enough has been said to indicate that the present legal status of Equipment Bonds is complicated and peculiar. The trust deed, covering movable property, is a chattel mortgage; and representing the transfer of property under certain provisos, it is a bill of conditional sale, so to speak. It is the chattel mortgage aspect of the trust deed that affords the material security to the bonds, just as in any mortgage bonds; it is the conditional sale aspect that prevents title from going into the hands of the railroad and the equipment from going under the railroad's blanket

¹ If, at this writing, there are any states that do not simplify by statute the recording of conditional sales, equipment bonds may be issued there under the regular chattel mortgage laws.

mortgage. Although title, as distinct from possession, does not pass to the railroad until the fulfilment of the deferred payments, yet, to all intents and purposes, the equipment does belong to the road and is the tools with which the road does its business.

924. In this connection it is customary to compare the legal situation of a road's mortgaged rolling stock, in foreclosure, with that of a mechanic's tools, which are exempt from seizure in bankruptcy proceedings. Possibly the comparison was suggested originally by early decisions such as that of Judge Hallett, in the United States Circuit Court, in the case of the Denver and Rio Grande in 1886, who held that "car trusts, principal and interest, are preferred securities to all mortgage claims and must be paid out of the revenue of the property the same as wages and labor." It is extremely questionable whether, even in the same jurisdiction, this legal principle would be upheld.

The analogy is somewhat hasty. The mechanic actually owns title to his tools, and their exemption from execution is a legal exception; but the railroad does not have title to the equipment, and the result that the equipment cannot be levied upon for the company's debts is an ordinary legal consequence and not any exemption or exception at all.

925. Yet the analogy is ordinarily valid as respects the underlying principle of business expediency. Both tools and rolling stock are personal property *usually* necessary to the conduct of business and to the ultimate satisfaction of creditors' claims. Courts, both state and federal, have passed upon this point for rolling stock, and in receivership have *usually* authorized the issuance of receiver's certificates, or otherwise have provided for the prompt payment of interest and maturing principal, on a virtual parity with the payment of wages and the purchase of necessary materials and supplies.

926. The trend of recent decisions has been such that when, as in the case of the Detroit, Toledo, and Ironton, the equipment is not essential to the upkeep of the road, the bondholders must look for reimbursement to a real equity in the mortgaged property. They even may have to face decisions such as that given about two years ago by a Missouri Court to the effect that

"a mortgage of the property acquired, and to be acquired, and of the income of a quasi-public corporation, such as a railroad company, takes a lien on the net earnings after the current expenses of operation in the ordinary course of business are paid, and impliedly agrees that the gross income shall be first applied to the payment of these expenses.

"The test of the quality which entitles a claim to a preference over the mortgage in foreclosure is whether the consideration of the claim was, or was not, a part of the current expenses of the ordinary operation of the corporation.

"Neither the fact that the consideration of the claim conserved the property and increased the security of the mortgage, *nor the fact that it was necessary to keep the mortgagor a going concern or to continue its business or operations, will raise a preferential equity in its favor,*¹ if its consideration was not a part of the ordinary operations of the mortgagor.

"*Claims for the purchase price or the rental of engines, freight and passenger cars are not entitled to preference in payment out of the income or out of the corpus of the mortgaged property over those of creditors secured by prior mortgages.*"²

927. It will be understood that under such a ruling a court might hinder a receiver in the performance of his plain duty as business manager of the railroad by withholding permission for the issuance of certificates. But it is not probable that any body of legal decisions will overlook the fact that equipment trust obligations may have a preferential claim from a business, though not from a legal point of view.

928. **The Modern Trust Deed.** In describing the development and present forms of equipment obligations we have touched upon the more important aspects, especially legal, of the modern equipment trust deed, but these further features are of moment. It is usually a three-party agreement subscribed to by the railroad, the bond house (or other company) as vendor, and the trust company as trustee for the bondholders. It provides for the conspicuous marking of each piece of rolling stock with the serial number under which it was built, and even for metal plates inscribed with "_____ and Co." (the vendors), the plates and numbers not to be changed without consent of the trustee. "The railroad will not allow the name of any person, association, or corporation to be placed on any of the said equipment as a designation which might be interpreted as a claim of ownership by the railroad"; provided that the railroad may letter its engines, tenders, and cars with its own name for proper identification.

929. The railroad shall keep the equipment in proper and complete repair and renew and replace such as may be worn out, lost, or destroyed, with other of substantially the same quality and character. The railroad shall furnish a complete statement concerning the equipment and its whereabouts, at least once a year, and allow the vendors access to the premises and facilities for the

¹ The italics are ours.

² The italics are ours.

inspection of the property to which it holds title. The railroad shall insure the property in trust for the holders of bonds against loss or damage by fire and other loss that is a usual, insurable risk, to an amount equal to (say) twenty per cent. of its value and in companies approved by the vendors; (twenty per cent. being amply sufficient to cover all possible risk to such scattered property as rolling stock). The railroad agrees to pay all taxes, assessments, or charges against the equipment, and agrees not to permit it to be pledged for taxes or other obligations of the railroad.

THE FINANCIAL HISTORY OF EQUIPMENT TRUST OBLIGATIONS

930. It will be observed from the abstract that the trust agreement is very exacting in its requirements for the protection of bondholders. Indeed, the development in this document of legal and financial principles of safety has been remarkable. How well the trust deed has served its purpose, even in days when not so carefully drawn as at present, is evidenced by the history of equipment trust obligations when put to the test of railroad receiverships and reorganizations. The Interstate Commerce Commission has issued no studies or history of car trusts or equipment bonds of railroads in receivership. Therefore the writer has examined most, if not all, the reorganization plans of companies having such securities outstanding during the past twenty-five years or so, with results of which the following notes are a summary:

931. Since 1885 there has been an average of considerably more than one company a year, with equipment securities outstanding, that has been in such straits as to default on its direct obligations.

932. In 1886 the Denver and Rio Grande Railroad, reorganized after foreclosure, owed \$3,476,000 in 6 per cent. and 7 per cent. equipments. It was in adjudication of these bonds that Judge Hallett rendered the favorable, but untenable, decision quoted previously. Under an agreement with the car trust holders, \$600,000 of the bonds were paid in full and the remainder exchanged for consolidated mortgage bonds and preferred stock that later were worth about forty per cent. more than the car trusts. During receivership no other issues received interest. This is one of the very few instances in which cash in full was not paid in receivership on maturing principal and interest of equipments, and in all cases of exception to the general rule it is to be remembered that the

consent of a majority of the bondholders was, of necessity, first obtained.

933. In 1888 the Chesapeake and Ohio was reorganized without foreclosure, and the equipment bonds, amounting to \$1,371,000, were undisturbed though all other securities were reduced in rate or refunded for a less amount.

934. In 1892 the Central Railroad and Banking Company of Georgia, then leased to the Georgia Pacific, went into the hands of a receiver; in 1894, the Georgia Pacific, which, in turn was leased to the Richmond and Danville, followed suit, drawing down with it the Richmond and Danville in foreclosure of the latter's consolidated mortgage. The interest and maturing principal of the equipments of all three roads, amounting to several millions, were paid in full. In several cases the mortgage and debenture bonds were unfavorably modified or temporarily reduced in amount under the Richmond Terminal Company's reorganization plan. A division of the Richmond Terminal System had outstanding Improvement and Equipment 5s which were exchanged for 4 per cent. bonds and preferred stock, ultimately worth considerably more than the replaced bonds, but the 5s were not strictly an equipment issue and should not be considered.

935. In 1892 the Savannah, Americus, and Montgomery, now a part of the Seaboard Air Line, suffered receivership. The equipment bonds were untouched.

936. In 1893 the Toledo, St. Louis, and Kansas City Railroad, now the Toledo, St. Louis, and Western, went into receivership. It defaulted upon its \$9,800,000 mortgage bonds. The equipment payments were met, as usual, by the receivers.

937. In 1895 the Atchison, Topeka, and Santa Fe was reorganized after foreclosure. During receivership, the court authorized payment of interest and maturing principal on over \$2,000,000 of equipment bonds and car trust obligations. Interest was defaulted on the mortgage bonds. At reorganization \$1,200 in new general mortgage bonds was reserved to retire each \$1,000 equipment bond at maturity. Practically all other securities were reduced in rate or refunded at a less amount. Of equipment bonds the reorganization plan says: "These constitute charges upon the revenues of the company prior to the General Mortgage bonds, the interest and instalments on the same" (equipments) "having been paid under the order of the court by the receivers."

938. In the same year the New York, Lake Erie, and West-

ern, now the Erie, was reorganized after foreclosure. During receivership, receiver's certificates were issued to pay maturing principal and interest on the \$2,000,000 of outstanding equipments, and after foreclosure securities were sold for the same purpose. First mortgage bonds were left intact, but other securities were reduced in rate or amount.

939. In 1895, also, the Union Pacific was reorganized after foreclosure. The equipment bonds, of which \$1,149,000 were outstanding, were undisturbed and new general mortgage bonds were reserved to pay them at maturity. All other securities including the first mortgage bonds were reduced in rate or amount.

940. The following year the Baltimore and Ohio passed into the hands of receivers, and was reorganized without foreclosure in 1898. \$300,000 in equipment obligations, maturing within these three years, were extended with the consent of the holders till 1899, at increased interest. And during the same period the United States Circuit Court authorized an issue of \$3,400,000 car trust certificates and \$5,000,000 receiver's certificates, part of which latter were "to pay for the restoration of the rolling stock and equipment of the railroad company." In all about \$11,000,000 was applied, directly or indirectly, by the issuance of receiver's certificates, to the upkeep and improvement of the company's equipment. The charges incurred by these certificates were paid in full though almost all other securities were reduced in rate, and interest and rental obligations suffered temporary default.

941. In this same year, 1896, the Norfolk and Western was reorganized after foreclosure. Of the \$7,239,000 equipments, \$3,125,000 were paid and \$4,114,000 were refunded at par in bonds with a bonus of preferred stock. The refunding bonds and preferred later became worth 140 cents on the dollar. Several issues of mortgage bonds were reduced in rate or amount. This was another instance in which cash was not paid on all maturing equipments.

942. In 1896 the Philadelphia and Reading was reorganized after foreclosure. The \$7,300,000 of equipments were paid, partly by assessment. Junior securities were refunded for a less amount.

943. Regular and full payments were made on \$3,000,000 equipment bonds of the Northern Pacific, reorganized after foreclosure in 1896. In this case all other securities suffered in rate or amount.

944. The next foreclosure (1899) on a road with equipment obligations was that of the Columbus, Hocking Valley, and Toledo Railway, now the Hocking Valley Railroad. All mortgages de-

faulted. Interest on the \$1,000,000 equipments was paid, and ten per cent. of the principal was retired regularly according to the provisions of the equipment sinking fund.

945. In 1900 the Kansas City, Pittsburg, and Gulf was succeeded in foreclosure by the Kansas City Southern. All the old securities except the equipments were reduced in rate and amount when exchanged for new first mortgage bonds on the latter company, but sufficient of the new bonds were sold to pay off the equipment charges when due (\$1,900,000).

946. On August 1, 1905, a receiver was appointed for the Pittsburg, Shawmut, and Northern Railroad. Both mortgage issues, the \$164,000 First 5s and the \$14,491,600 Refunding Mortgage 4s, made their last coupon payments in the previous February. The equipment bonds were promptly paid as usual, although the road's misfortune caused an immediate decline in market value from a 4½ to a 5½ per cent. investment basis. Moreover, in 1907, the receiver issued \$592,000 more on a 6½ and 7 per cent basis. The high rate was due to the very poor credit of the road. In October, 1910, \$220,000 receiver's equipment trust certificates were authorized.

947. On December 4th of the same year (1905), the Cincinnati, Hamilton, and Dayton, and its subsidiary, the Père Marquette, went into receivership. The interest on the underlying mortgage bonds of the Cincinnati, Hamilton, and Dayton, and the interest and maturing instalments of the \$2,640,000 equipments, was unaffected, but at the time of reorganization in 1909 the road was \$1,046,000 in arrears of interest on its junior mortgage bonds, not including the interest on the \$15,000,000 Consolidated Mortgage bonds held as collateral. Ultimately defaulted interest was made up and only the note holders suffered materially. For each note they were given \$60 in cash and \$1,000 New General Mortgage (Deferred Income) Bonds.

The Père Marquette, like its lessee, readjusted its finances in 1907 without foreclosure of the property. Some of its mortgage bonds were in default for about two years, but the payments on its \$4,700,000 equipments were maintained.

The court authorized the receiver of the Père Marquette to issue \$1,730,000 equipment obligations to purchase new equipment, and also some short time equipment 6 per cent. notes to take up the \$2,600,000 5 per cent. notes, maturing March 2, 1908. Some of these refunding equipment notes were offered at par and interest.

What other sort of short time bond upon a road in such a condition as the Père Marquette could sell upon a 6 per cent. basis?

948. In January, 1908, the Seaboard Air Line went into receivership. On January 1st, in anticipation of default, two New York banking houses offered to purchase at full value maturing interest on all underlying bonds and car trusts, and maturing principal of the latter. Receiver's certificates were issued to reimburse the bankers.

Until the company resumed possession, without foreclosure, in November, 1909, the First Mortgage 4s and the General Mortgage 5s were in default of their interest. The plan of readjustment caused the majority of the First 4s to be stamped callable. Otherwise they were not disturbed, but the General 5s were exchanged at parity for 5 per cent. Interest Adjustment (cumulative income) bonds. The immunity of equipments had become so much a matter of course that the \$6,000,000, approximately, of these bonds were barely mentioned in the plan of readjustment.

949. Immediately following the Seaboard Air Line (February 5th, 1908), the Detroit, Toledo, and Ironton was turned over to a receiver. The subsequent history of this road is of more interest to us than the history of any other, for it furnishes the only case of a serious, permanent equipment trust default. The Detroit, Toledo, and Ironton is one of the poorest railroad properties of any size in the country. In only one of its nine years of existence has it earned its interest charges. Furthermore, unwise management had brought the road to such a pass that when it became insolvent, and defaulted on all its other notes and bonds, there was not, for a time, sufficient business to necessitate the retention of all the equipment, nor had the company sufficient credit to raise the necessary funds as rapidly as the manufacturers of this equipment (who held a large part of the bonds) desired. Therefore, about a year later, in April, 1909, the equipment covered by the \$1,656,000 Equipment Trust 4½s of 1905 was surrendered to the Trust Company of America as trustees for the American Car and Foundry Company et al. The equipment was sold at auction the following month to the St. Louis-Union Trust Company, in behalf of, and acting for the holders of the entire outstanding issue. The price of \$1,200,000 was paid simply by the cancellation of the debt to that extent.

The American Car and Foundry Company will probably apply to the courts for a deficiency judgment, but it is exceedingly doubtful if the noteholders are ever fully reimbursed.

A reading of the deed of trust leaves no question about the regularity of the issue as an equipment obligation of the conditional sale type.

We have emphasized the fact that so far as concerns collateral security, equipment bonds become stronger as they grow older. The \$1,656,000 4½s of 1905 were part of an issue of \$2,070,000 due \$207,000 annually. Two instalments only, therefore, had been paid. The theoretical equity was not great.

The Detroit, Toledo, and Ironton, however, was also responsible in 1909 for the remaining \$200,000 of an issue of \$400,000 Detroit Southern car trusts, \$40,000 of which were due annually. The equity in this property was greater and hence all payments have been made on the Detroit Southern bonds, although there was about a two-months' delay in interest when the road first became insolvent.

950. On February 13, 1908, the Chicago, Cincinnati, and Louisville was turned over to a receiver after default on all its mortgage bonds. There was a floating debt of \$1,750,000 and many small claims were overdue. The road was short of equipment and on May 26 the receiver was authorized to issue \$1,000,000 3-year 6 per cent. certificates, part of which were used in the purchase of new cars and \$100,000 for the rental of the equipment held under car trust agreements as payments matured during the succeeding six months.

No further provision of moment seems to have been made for the equipments during the receivership, for when the road was acquired at foreclosure by the Chesapeake and Ohio of Indiana, the purchase was made subject to the following unpaid equipment liens:

Hoosier Equipment Company First Mortgage 5s (with interest from January 1, 1909)	\$200,000
Car Trusts, American Loan and Trust Company 5s (with interest from December 1, 1908)	150,000
Burnham Williams Equipment Agreement (with 5 per cent. interest on \$50,656 thereof from March 2, 1908)	91,194
Haskell and Barker Car Company Equipment Agreement (with 4 per cent. from May 17, 1909)	177,744

951. Railroad receiverships, after the panic of 1907, were numerous. In the same month that the Detroit, Toledo, and Ironton and the Chicago, Cincinnati, and Louisville went under,—on the

26th,—the International and Great Northern followed, having for some time been in arrears of interest on its Third Mortgage 4s. At the next interest period the Second Mortgage 5s omitted payment, and neither issue has yielded anything since. At the time of bankruptcy, the road had about \$500,000 of equipments outstanding. Care has been taken of these regularly.

952. When the Wheeling and Lake Erie became bankrupt in June, 1908, interest was defaulted on the \$8,000,000 5 per cent. notes, secured by \$12,000,000 General Mortgage 4s. No interest had ever been paid on this collateral, which at no time had ever been in the hands of the public. The 5 per cent. notes matured August 1, 1908, but still remain unpaid.

For a month or two there was default on the Equipment 5s of 1922, but only until the receiver obtained permission from the United States Circuit Court to pay the July coupons. It is reported that since then the price of the equipments has held well.

953. But the Wheeling and Lake Erie equipments well illustrate the danger of departure from the ten-year serial form on which we lay so much emphasis. The original amount of the issue was \$2,500,000, and the cost was, as usual, 10 per cent. in excess, or \$2,750,000. The bonds are a direct obligation of the road, but they run for 20 years, with the annual sinking fund only 3 per cent. for the first four years, and 4, 5, 6, and 7 per cent. for the succeeding periods of 4 years each.

954. At the time of the temporary default only \$502,000 (20.1 per cent.) had been amortized, although \$525,000 (25 per cent.) should have been paid according to the terms of the trust deed. This is another illustration of the inefficacy of sinking funds. If, however, the issue had been of standard form, \$1,625,000 (65 per cent.) would have been amortized.

The theoretical depreciation of the rolling stock, based on a 15-year life, was about \$1,200,000 (or 43 1-3 per cent. of the \$2,750,000 cost), leaving a value of \$1,550,000, against which the outstanding debt was \$1,998,000 or \$448,000 more than the property was worth.

But by the 10-year serial method, with semi-annual payment, only \$875,000 of bonds would have been outstanding and the value of the property would have been \$675,000 (or 77 per cent.) more than the debt.

955. When the Norfolk and Southern was turned over to receivers on July 1, 1908, there were outstanding \$2,203,047 three-year col-

lateral trust notes dated November 1, 1907, that had as part collateral \$1,200,000 Norfolk and Southern "straight" 10-year 5 per cent. equipment bonds, the principal of which was to be paid the trustee when due. As collateral, none of these equipments were in the hands of the public, and no interest was paid on them. The collateral notes themselves were not affected, although there was default of interest on the \$15,000,000 First and Refunding 5s. In the road's reorganization, May 5, 1910, as the Norfolk Southern, the equipments were canceled with the retirements of the notes.

956. Still two other roads with equipment debt went wrong in 1908. On August 19th, when the Chicago Southern was turned over, a majority of the \$78,121.78 equipment notes were in default. These notes were not of the formal equipment type, nor in the hands of investors. The rolling stock pledged was 235 side-dump cars for company service, which, with 10 locomotives, was all the rolling stock the company owned. On March 10, 1909, the vendor of the cars claimed the right to retake and sell them, and also claimed there was due from the receiver, for rental and destroyed cars, the further sum of \$15,000. The vendor, moreover, claimed that a sale of the cars would fail to pay the amount due on the notes by \$33,000, and therefore that this amount would be a further claim on the receivership estate. Against this claim the receiver had a counter claim for repairs and transportation amounting to about \$6,800. Believing that the dump cars were practically useless for the purposes of the road, the receiver made a complete settlement of the respective claims, under which the notes were discharged, the cars were returned to the vendor, (as in the case of the Detroit, Toledo, and Ironton), and a cash payment of \$5,000 made by the receiver.

957. The subsidiary Southern Indiana, which went into receivership at the same time as the parent company, had defaulted the first of the month, on its First Mortgage 4s. On November 1st the General Mortgage bonds suffered the same way.

At that time there were in the hands of the public \$753,333.95 of equipment notes, including interest due. In settlement, the note-holders accepted \$200,000 cash, raised by receiver's certificates, and \$553,333.95 payable one-fourth on November 1, 1909, and one-eighth each May and November until the final settlement, November 1, 1912.

The Chicago, Terre Haute, and Southwestern took over both the above properties on January 1, 1911, without disturbing the principal of the Southern Indiana First 4s, but holders of the other

securities were given the usual cumulative income bonds, and some stock.

958. The record of the equipment bonds of the Atlanta, Birmingham, and Atlantic is next in order. The road went into receivership on January 2, 1909, as the result of default the day before on the First 5s of 1936. This default has continued. The company's collateral trust notes have fared better; they were due in 1910 and have been extended two years to be sure, but the coupons have been met with slight delay and the plan of reorganization contemplates their payment.

Most of the road's equipment and cars were held under the equipment trusts, which amounted to over \$2,600,000. The January, 1909, interest and the maturing instalment of the Series B equipments was not paid until February 10th, but there has been no trouble since. The coupon and instalment payment of Series A bonds was due in May, but was delayed for about two months.

The relative security of the road's "First" Fives (largely a second mortgage issue) and of the equipments is evidenced by the market. The Series A Equipment 5s of the 1917 maturity were offered in December, 1909, at 99½ and interest, and at the same time the First Fives of 1936 were offered at 50 flat.

959. On May 1, 1910, the Buffalo and Susquehanna Railway defaulted on its \$6,000,000 First Mortgage 4½s and went into receivership. The road had for three years been operating the Buffalo and Susquehanna Railroad, and guaranteeing 4 per cent. dividends on both classes of the Railroad's stock and paying the bond interest, etc. On July 23 the Railroad also went into receivership. It still pays interest on the small First Mortgage issue of \$61,000 outstanding, but the \$9,510,000 First Refunding 4s are in default. The Railroad has no equipment bonds, but the Railway has four series of equipments amounting now to \$1,606,000. Interest and maturing principal have not suffered a day's delay in payment.

960. Depreciation and Serial Payment. The fact that the prior payment of equipment bonds is not an inherent legal right, but a matter of business expediency very generally recognized by the courts, probes whatever weakness there is in equipment bonds. If, because of its special nature (as in the case of the Chicago Southern), or because there is too much of it (as in the case of the Detroit, Toledo, and Irontron), the receiver rejects the equipment and permits the mortgage to be foreclosed, then it becomes very pertinent to inquire whether the rolling stock will sell at auction for the full

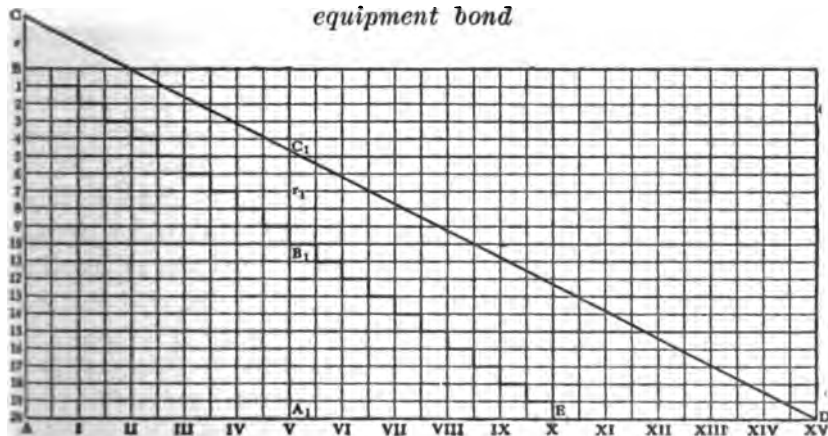
value of the bonds. Let us consider, then, what material or auction values lie behind the bonds.

961. In the first place there is from ten to twenty-five per cent. equity in the property when the bonds are issued,—that proportion of the cost, as we have stated, being paid in cash. Since the principal usually matures in equal semi-annual instalments over a period of (usually) ten years, the outstanding amount of the mortgage decreases five per cent. every six months. Rolling stock, particularly engines and passenger coaches, depreciates rapidly, but not so rapidly as the mortgage decreases, and has an average life for selling purposes of from fifteen to twenty-five years. With the development of steel-frame construction and the general improvement in car-building the tendency is toward longevity. Reckoning upon fifteen years and an arbitrary uniform decrease in selling value, and assuming a 10 per cent. equity when the bonds were issued, we can readily figure what theoretical auction security is behind the bonds at any time during their life. The accompanying diagram may assist.

962.

CHART I

Diagram showing the growth of equity in a ten-year serial equipment bond



Perpendicular distance represents value.

AB=Amount of mortgage at issuance.

AC=Value of rolling stock at issuance.

BC=Equity in rolling stock at issuance.

BE=Line of diminishing mortgage debt.

CD=Hypothetical line of diminishing value.

Horizontal distance represents time.

I, II, III, etc.=Number of years since issuance.

1, 2, 3, etc.=Serial Instalments of mortgage.

r=ratio of equity to value, i.e. margin of safety.

Problem (the simplest case and the simplest solution.)

Find the margin of safety for the bonds at the end of five years.

Let A_1B_1 = Amount of mortgage outstanding at end of 5 yrs.

A_1C_1 = Value of rolling stock at end of 5 yrs.

B_1C_1 = Equity of rolling stock at end of 5 yrs.

r_1 = Margin of safety at end of 5 yrs.

Then $A_1B_1 = \frac{1}{2} AB$ (50% of mortgage having matured)

And $A_1C_1 = \frac{3}{4} AC$ (value having depreciated $\frac{1}{4}$ in 5 yrs.)

Now $r = \frac{BC}{AC} = \frac{1}{10} = 10\%$ at issuance

$$r_1 = \frac{B_1C_1}{A_1C_1}$$

But $B_1C_1 = A_1C_1 - A_1B_1$ (See Diagram)

And $\frac{B_1C_1}{A_1C_1} = 1 - \frac{A_1B_1}{A_1C_1}$ (Dividing by A_1C_1)

$= 1 - \frac{\frac{1}{2} AB}{\frac{3}{4} AC}$ (Substituting)

$$= 1 - \frac{3}{4} \left(\frac{AB}{AC} \right)$$

$$= 1 - \frac{3}{4} \times \frac{9}{10} \quad \left(\frac{AB}{AC} = \frac{9}{10} \text{ by Diagram} \right)$$

$$= \frac{13}{40} = 32\frac{1}{2}\%$$

But $\frac{B_1C_1}{A_1C_1} = r_1$ (Above)

Therefore $r_1 = 32\frac{1}{2}\%$

963. The Margin of Safety. Other cases could demonstrate mathematically, as the diagram does graphically, that the hypothetical margin of safety grows from 10 per cent. at the making of the mortgage to 92 17-19 per cent. at the beginning of the last half year. It is a purely hypothetical margin, however, for the line of diminishing value necessarily is not straight, but composed of broken curves determined by the fluctuating supply and demand throughout the entire country for rolling stock. If this demand during a heavy crop movement in a prosperous year should become acute, it is quite possible that the value of rolling stock that had not become overworn, might approach, temporarily, even after months of use, its purchase price, or under converse conditions, might make a much poorer showing than the diagram indicates. As it is, depreciation the first year must be abnormal, for once a car is used at all it becomes second-hand and must be priced accordingly. But the diagram and figures, as a whole, are useful. They show that for a short term

investment the later maturities, bought when an issue has been long outstanding, have a greater margin of safety than the earlier maturities of a newer issue—indeed many times as great. The history of equipments in reorganization bears this out. In this diagram the minimum original cash equity and minimum of life for the rolling stock are assumed; in case of greater original cash payment and greater equipment longevity the showing would be very much better.

964. Variations in Form. The Vanderbilt system has recently floated a \$30,000,000 equipment loan that varies in several respects from the normal type. The maturities, which are annual, are distributed over a period of fifteen years, with what loss to the material security of the loan a mental readjustment of the diagram will show. In this case the loss is compensated for by the guarantees of four of the Central's subsidiary companies. A more radical departure from the type is that of the Delaware and Hudson, which in 1907 issued an equipment loan maturing in 1922 that substituted a sinking fund for the usual semi-annual repayments. This is to be regretted, since, apart from the dangers attendant upon sinking funds in general, it opens the way for further inroads into the integrity of the perfect form, namely, the ten-year, semi-annual, serial bond, protected with at least a ten per cent. cash equity. As it is, we are threatened with redeemable equipment issues and already have car trusts not intended for public absorption, but for use as collateral. It is even possible that junior equipment liens, trolley equipment liens, or other departures from the norm may be devised, though that, perhaps, is borrowing trouble.

965. In view of the preferential claim of equipment obligations on earnings, and of the splendid history of equipments when put to test, the question naturally arises, why do such strong bonds yield a comparatively high rate of interest, approximately one-half per cent. higher than good railroad mortgage bonds. Largely because they are not thoroughly appreciated.

966. Investment Return: Popular Prejudice. Equipment bonds are, as we have said, the outgrowth of the railroads' impecuniosity. Necessity has seldom mothered a better fiscal invention. But since, in the old days, the bonds nearly always found their way into the strong boxes of moneyed institutions, the recollection among older investors of the necessity of the railroads has been stronger than that of the goodness of the invention. Furthermore the security

is a chattel mortgage, and by reason of this classification the bonds are frequently condemned. Or if not in point of law, the bonds have suffered in popular estimation by reason of the sort of material security they offer. Rolling stock deteriorates rapidly, may be lost, stolen, or destroyed by fire, derailment, and collision,—these are common objections; the provisions against such misfortunes are not appreciated; and the ignorance of the many is yet the opportunity of those who invest knowingly. From misconceptions and ignorance, too, equipment bonds are not, as a rule, eligible for savings bank investment in those states that exercise close supervision in such matters, and this being the case, are not favored by trustees of estates.

967. Competitive Demand. But the fundamental reason for the high yield is the short life. It must be remembered that, although the normal type is the ten-year bond, it is serial in form, and the average life of the several maturities is only five years, and therefore any one issue has little opportunity to become widely known and to have its value enhanced by competitive demand. The shorter the life of a security the less its potentiality for increase in value. Since it is essential that the standard duration be short, probably equipment issues will always present a higher return than do high class mortgage railroad bonds of long life. One may then, in virtue of security and yield, recommend the purchase of equipment issues of the present standard when longevity is not a requirement of the investment.

968. Growth in Favor. At the present time there is a difference of nearly one-half per cent., as we have said, between the average income yield of equipment and the better railroad mortgage bonds. As the virtues of the former become more widely recognized this discrepancy will, no doubt, be somewhat reduced. Equipments are growing in favor very rapidly. Whereas a half-dozen years ago some bond houses and many bond salesmen seem uninformed of the exact status of this form of investment, now it is the public only that needs to be taught, and bankers and financial periodicals are seeing to it that information upon the subject, intelligently gathered and ably presented, shall not be wanting. When, within four months of the 1907 panic, the New York Central Lines could dispose, with éclat, of about \$30,000,000 of equipments in a fortnight or so upon a public in anything but an investing mood, the battle for popular recognition might be said to be nearly won, especially when it is remembered that not many years since there was scarcely three

times that amount of the bonds, altogether, in the hands of the public.

It is to be hoped that the future great equipment issues, which will run into eight figures, will not depart radically from the perfect norm that experience has found so safe and satisfactory.

CHAPTER XXIV

STEAMSHIP BONDS

969. Steamship Bonds naturally find a place among the loans of transportation companies, although they have no prominence as a type of security. The body of investment principles which characterize and differentiate them is small; and the application of principles peculiar to them is rendered difficult by the variety of conditions under which steamship companies operate.

970. Blanket Mortgage Steamship Bonds. Those issues which can be most nearly judged as we should weigh many of the other types of private corporation bonds, are blanket mortgages, the obligations of companies operating several or many vessels, and possibly operating in many waters. We should expect the mortgage to be a first lien, and the company to have a satisfactory record of earnings derived from a kind of traffic that is steady and promising.

971. Equities. The valuation of the ships, docks, terminal buildings, or other property of the company under the mortgage, should be the estimate of disinterested appraisers, and should show an equity of about 100 per cent. over the authorized amount of the bonds. It is best for the maintenance of the equity that the vessels be new, or nearly so. Any bonds in escrow should be issued for additional property only to about 75 per cent. of its value.

972. It is very desirable that the bond issue mature serially, especially if much of the equipment is not new. The action of water, fresh or salt, is not favorable to material property, and deterioration is rapid. Changes in marine transportation, both engineering and commercial, are rapid, and transfer by sea or lake is not a natural monopoly. Therefore the margin of safety should be increased, annually, by the serial retirement of the bonds.

973. Insurance. Insurance in favor of bondholders is a factor of safety for almost any kind of funded corporation loan. It is desirable as collateral for equipment bonds. If there are insurable buildings or plants, it is essential to timber and real estate bonds. But it is the very life of the security for steamship bonds.

974. It is customarily provided that insurance covering all the

property shall be maintained in amount 25 per cent. in excess of the mortgage. But this is not necessarily sufficient. The policies should be deposited with and made payable to the trustee for the bondholders. They should cover, not only land hazards, and the ordinary marine dangers of fire, collision, stranding, sinking, etc., but also afford protection against claims for damage done to other vessels, to docks, bridges, and any fixed or floating property.

975. The mortgage should make provision for the disposition of any insurance moneys paid in:—either arranging for the replacement of the property destroyed, and requiring that the steamship company should pay the difference between the cost of the new property and the amount of insurance obtained, or else reinforcing the security for the bond issue by diverting this money to the sinking fund.

976. Mr. Montgomery Rollins has quoted some legal principles which apply to the mercantile marine.¹ They are as follows:

“The liability of the owner of a vessel for loss or damage to another vessel or to the cargo of either vessel, happening through errors in navigation or management, or from perils of the sea, but without his knowledge or privity, is limited to the value of his vessel, and the freight then earned, in the condition in which it is after the happening of the loss or accident.

“The owner is also not liable for loss or damage by fire to the cargo carried in his own vessel unless caused by his own neglect.

“If the owner exercise due diligence to make his vessel seaworthy and to see that she is properly manned and equipped, neither he nor his vessel is liable for loss or damage to the cargo carried, from errors of navigation or management, or from dangers of the sea.

“The owner may relieve himself of all liability by transferring all his interest in the vessel and the freight then pending to a trustee for all claimants.

“It follows that the owner is not personally liable if his vessel becomes a total wreck.

“Insurance on the vessel, recovered by the owner, is no part of the owner's interest in the vessel, and is not liable to be taken to pay for the loss or damage.

“The owner of a vessel is of course personally liable, without limitation, if the loss is attributed to his own fault or negligence.

“In case of a corporation, the ‘knowledge and privity’ which would make it liable must be the knowledge and privity of its officers or managers, and not of the masters of its vessels.”

977. **Management.** So much of steamship freight traffic is derived from, or tributary to, other systems of transportation, notably the railroads, that it is desirable to know the standing and affiliations

¹ *Money and Investments*, Boston, 1907, pp. 375-376.

of the management. Affiliation usually may be traced by stock ownership—back to the company or interests which own the capital stock, or forward to the subsidiary steamship or other companies which are controlled by stock ownership.

978. Affiliations are particularly important because steamship lines control no right of way and have no natural monopoly.

979. "Single Boat Bonds." When the bonds are secured by lien upon only one boat it is obvious that its physical excellence must be the object of close scrutiny. Yet it is by no means to be inferred that any inferiority attaches to the single boat type. In many, if not most cases of this sort, the obligor company is owner of only one or two boats. Although the capital of the company may have been fully paid in, and the amount may have been approximately equal to the bonded indebtedness, nevertheless, after paying necessary organization expenses (including the purchase of wharfage facilities and rights), the stock does not represent, in event of failure, much merchantable property except the equity in the boat itself.

980. Steamship Bonds of the Great Lakes. "Single Boat Bonds," if we may coin this expression, are studied at their best in the case of the grain- and freight-forwarding companies of the Great Lakes. These loans deserve mention because of their particular excellence, and because of the amount of them that have been put on the market. They are held in sufficient esteem by the State of Michigan, which ought to know, for the legislature to make them legal for savings banks.

981. The Michigan law is given below, in full, because it is such an excellent summary of the investment principles.

Act 262, P. A., 1905, as amended by Act 480, P. A., 1907, Section 27, provides that a savings bank may invest any part of three-fifths of its total deposits in certain kinds of municipal and corporation bonds; and

(g) "in the legally authorized first mortgage bonds of steamship companies: Provided, That such mortgages shall be upon steel steamship or steamships for the carriage of freight or package freight and passengers combined, upon the Great Lakes and connecting waters, of at least five thousand tons carrying capacity each: Provided, Such bonds are issued at the time of completion and enrollment of such steamship or steamships, or within one year thereafter: and Provided further, That by the express terms of said mortgage, at least ten per cent. of the total issue of said bonds shall be retired annually, beginning within two years from the date of said bonds, and that the mortgage liability against said property shall not exceed one-half of its actual cost: and Provided further, That the trustees of such mortgage shall be required to protect the

lien of said mortgage by attending to the recording thereof and by causing property covered by said mortgage to be insured against all risks on vessel property ordinarily covered by such insurance, including marine risks and disasters, general and particular average, collision liability, protection and indemnity insurance, and insurance against liability for injuries to persons, in insurance companies and under forms of policies approved by the trustees, for an amount equal to the full insurable value of such steamship, such insurance to be made with such loss payable to said trustee, and the policies deposited with it: and Provided further, That there shall be filed with the commissioner of the banking department of this state a schedule of the insurance upon such property, which schedule shall be signed by the trustee under said mortgage and shall be accompanied by the certificate of said trustee that the policies mentioned in the said schedule are held by said trustee and are payable to said trustee in case of loss for the benefit of the holders of the outstanding bonds issued under such mortgage; and further, that similar certificates be filed from time to time by said trustee with said commissioner of the banking department of this state, evidencing renewals of said insurance by proper policies or legal insurance binders: Provided further, That by the terms of such mortgage, the mortgagor shall not suffer such steamship to become indebted in an amount exceeding five per cent. of the original amount of the principal of said mortgage at any time and that the failure of the mortgagor to forthwith secure the release of such steamship or steamships from mechanics', laborers', admiralty, statutory or other liens, claims or charges against such steamship, shall constitute a default in the provisions of such mortgage: and Provided further, That such bonds shall have been approved by the securities commission hereinafter provided for."

982. Their Record. An editorial in the *Marine Review*¹ comments: "Since the trust companies of the Great Lakes began dealing in this form of security, over \$15,000,000 worth of bonds have been sold, and there is yet to be related a single instance wherein one of them defaulted in its interest account." The Editor of the *Review* informs the writer that since this article was written, 179 bulk freighters have been launched on the Great Lakes, practically all of them bonded. Presumably the exceptions to bonding are the ore ships of the big steel companies. By this building, approximately \$40,000,000 of new steamship securities have been floated, and as yet there has been no default.

983. There is a marked and highly desirable uniformity of conditions under which the steamship bonds of the Great Lakes are being issued. The boats pledged are steel clad vessels, of A1 rating in the Registers, designed, say to carry down cargoes of wheat from Duluth to Buffalo, and return between decks cargoes of package freight. They may be steel freighters built to carry ore eastward

¹ Detroit, January 26, 1906.

from the mines of the Messaba district. They may be coalers or other carriers of the enormous Great Lake traffic.

984. The life of a steel clad steamship is estimated at 60 years. The classification societies will give such steamship an A 1 rating for 20 years, and upon observance of certain conditions will renew the rating for a like period. The bonds, issued in amount to about one-half of the cost of the vessel, mature within ten years in about equal annual series. The equity, therefore, grows more rapidly than in the case of equipment bonds.

985. Insurance. The necessities of ample insurance protection are even more easily realized in the case of these single boat bonds. It should be imperative by the terms of the mortgage that the general insurance itself considerably exceed the bonded indebtedness and cover, not only the liabilities of collision, sinking, etc., previously mentioned, but also the breaking of machinery and bursting of boilers, and any hurt to the vessel through the negligence of master or crew.

986. In addition to full general insurance, the vessel will carry protection and indemnity insurance against liability for loss of life or personal injury. The bond circular should state the respective amounts of general and indemnity insurance, and the mortgage should stipulate the minimum of each permitted. It is to be doubted if the terms of the mortgage are usually strict enough or explicit enough, for frequently the interest of the owners makes them carry an insurance in excess of the requirement.

987. Earnings. The supervision of the trustee will extend beyond matters of insurance. The trust company will see to it that the company owning the vessel does not contract a temporary indebtedness in excess of the necessary operating expenses. As a rule the mortgage limits this amount to \$1,000. The trust company will require that a statement of the earnings and expenses of the vessel be returned to it, say quarterly, in order that it may know how the vessel is being managed.

Another way in which the mortgage may require that the vessel operate on practically a cash basis is by providing that it may become indebted in an amount not more than 5 per cent. of the bonds.

988. The construction of new, or the extension of the present systems of transportation by rail, canal, or river, cannot, it seems, cripple the freight business of the Great Lakes for many years to come, at least, and so endanger the earning power of vessels now being built and bonded. Ore will continue to be dug, and wheat

to be cut, in the Northwest, long after all the outstanding loans have matured.

889. New standards of luxury may call for the relegation of passenger boats to inferior and less profitable service, but freight carriage is independent of fashion, and governed by laws almost mathematical.

890. But even if it is conceivable that the Lake traffic, passenger or freight, could diminish to the extent of making certain lines unprofitable, there are other waterways adapted to the same service. Whalebacks, through prejudice or inadaptability, and other special and abortive types, might encounter greater resistance to occupancy of other waters, but the prospect is remote. Moreover, every year diminishes, by about 10 per cent., the necessary interest of the bondholders in the future of Lake transportation.

Perhaps these notes on a certain kind of steamship company and its bonds may be helpful in directing the bond buyer's lines of inquiry, when loans, from other quarters, of steamship companies operating under other conditions, are offered him for investment.

CHAPTER XXV

STREET RAILWAY BONDS

991. Nothing more clearly illustrates the immature condition of the science of bond investment than lack of precision in its nomenclature. The preliminary steps in an inductive development of any science are, of course, examination, description, and division or classification. It is at the point of classification that necessity arises for an exact terminology. It matters little whether plants, minerals, or securities are under examination, the use of properly labeled inscriptions for the specimens, or the lack of use, is a matter of moment to progress in the study.

992. **The Title.** At this point we want for a proper title to give the bonds of railway transportation concerns that are not steam railroad companies. As yet there is no uniformity of custom. "Electric Traction Bonds," "Electric Railway Bonds," and "Trolley Bonds" seem fairly inclusive and descriptive appellations, and have some vogue, but the cable is not yet obsolete and the third-rail is receiving more attention as time goes on. An objection of greater weight is that the distinction between electricity and steam as motive power will not serve many years longer to separate the present two great kinds of transportation. But this is anticipating. The United States Census Service entitles its special report "Street and Electric Railways in the United States," and embraces "all electric railways irrespective of their length or location and all street railways irrespective of their motive power." As this report is the most comprehensive single survey of the field and furnishes us with the greater part of our statistics in this chapter, it is well to remember that its title and scope are a little too broad to demarcate exactly the class of securities we have in mind.

993. On the whole, the most acceptable phrase, perhaps, is that in use on the exchanges: "Street Railway Bonds," meaning by this the bonds of all transportation companies (irrespective of motive power), the rails of which, whether laid on, below, or above the streets, or on private right-of-way in open country, bear freight and passengers as lighter local traffic, or as traffic tributary to cen-

ters of population, or tributary to long haul steam railroad traffic.

994. Variety of Kinds. No other securities commonly classed together except "Industrial Bonds" represent so many and such varied activities as these. In this respect they are the opposite of gas bonds. The gas industry is old, its technical and financial problems are simple, well understood, and reasonably uniform throughout the country. The principles of gas investment, therefore, are easy to develop and apply. It is not hard to purchase gas bonds wisely. The same holds of equipment bonds, except that these latter want the ripening of age that one hundred years of life have given to gas securities. Street railway transportation is not only more complicated in its characteristics and problems than gas-manufacturing, or car-building, but it lacks maturity and experience also. Its future, therefore, is not ascertained, and it has not yet had enough in common with steam railroading to have taken over from that business, as conducted in this country, the body of financial principles learned through a half-century of vicissitude. So, at best, any generic treatment of street railway bonds will be unsatisfactory from the bond buyer's standpoint, for little can be said that will be immediately helpful to a wise choice of securities. It requires study and a nice discrimination to purchase street railway bonds without subsequent regret. However, something is accomplished toward the desired result if one informs himself as to the history and present status of the industry.

995. History: the Urban Road. Electric railroading began in 1888 as an improvement upon animal traction in cities. The history of its development for the next ten or twelve years was the history of its gradual emancipation from the function of improved substitute for the horse car line and its establishment, physically and financially, upon the basis of its own peculiar strength and limitations as a means of urban transportation. At the end of this period it might have been said to owe nothing to its predecessor but the fare register and the franchise.

996. The Interurban. In 1895 came the interurban trolley. In its decade of predominance it passed through the same set of phases: from imitation of its predecessor, the urban trolley, through rough experience, to independent self-development as a distinct class of transportation.

997. At first, however, the relation between street and interurban railways was much closer than between interurban and steam roads

as to character of equipment and roadbed, kind of transportation service rendered, and methods of financing. So the two electric modes drew together and at the beginning of the new century their coalition was a thing generally accomplished; and the development from coalition to absolute merging with its consequent virtual loss of identity for the constituent divisions has since been going on as rapidly as ever in the preceding decades it went on among the smaller railroads toward the upbuilding of the great transcontinental systems.

998. **Interurban Centers.** Around the chief electric railway in each community as nucleus the outlying roads became grouped as feeders, and each group so formed served in turn, of course, the larger territorial scheme through its interurban connections. At present there are great interurban centers at Chicago, Indianapolis, Dayton, Detroit, Toledo, Cleveland, Columbus, Cincinnati, and Boston; and we have (or had) our interurban Gould and Huntingdon dispensations in the Everett-Moore, Pomeroy-Mandelbaum, and Appleyard syndicates.

999. **Geography** has played a very important part in this development. Almost all the great electric railway systems are to be found in the New England states, Pennsylvania, Ohio, Indiana, Illinois, and Wisconsin. The geographical situation suggests that under normal conditions well-settled districts having towns and cities scattered about with a fifty-mile radius are necessary as *nodi* to a successful interurban network, for these are the conditions that imply a high traffic density.

1000. **The Western Development: Competitive.** The last stage in the purely interurban phase of electric transportation development was the adoption of steam railroad characteristics: level, heavily ballasted roadbed with low gradients, heavy steel rails, Pullman dining and sleeping coaches, large terminal office buildings, the upbuilding of parcel and merchandise service, the issuance of through, excursion, and commutation tickets,—all these features of mature steam transportation have been employed in the Lake states, and often with success, to draw on sources of revenue that otherwise would go to the railroads.

This may be called the Western interurban phase. It is more picturesque than the Eastern, and consequently, has received more attention through periodical literature. It is a question, however, if it be not the less important.

1001. By popular diffusion of financial intelligence, perhaps

by force of economic necessity, we, as a people, have become partly reconciled to the development of transportation along monopolistic lines. Regulation by commission, we have come to believe, will serve to curb the evils that a natural monopoly fosters; the Judiciary and Executive draw a fine line in the definition of railroad competition; there is still a hue and cry at each new consolidation, and the railroads still deem it necessary to take the preliminary steps toward further grouping with the secrecy of conspirators; but organized opposition is now largely to serve either political or corporative ends. Again, however, as the result of popular will or through economic causes, or both, natural monopolies at present tend to grow by process more of agglutination than of fusion. That is to say the constituent companies tend to preserve a larger measure of autonomy and individuality than formerly. In railroading the catchword for this recent tendency is "community of interest," by which the results without the odium of exclusive possession are achieved. So the fact remains, and is tacitly conceded by the public, that the business of transportation properly performed is of necessity monopolistic.

1002. Into this present order of things the Western development of interurban units actively competing with steam roads does not seem to fit. In so far as electric traction in the West, with its vastly more adjustable service, is able to fill a different order of wants: carry small merchandise and garden truck to market, search into territory not reached by railroads and gather primitive traffic—it is doing sound business. But the ultimate interests of the community are not served where steam and electricity fight side by side for intercity business, both freight and passenger.

1003. Competition of this kind has been keenest in Ohio. On *a priori* grounds one would expect, for electric roads, at least temporary advantage. Their fares average about two-thirds those of steam roads, their through service is often as speedy and almost always more frequent, comfortable, and cleanly, and they usually discharge their passengers at more convenient points in the terminal centers. The classic illustration of the result upon railroad earnings is from the Lake Shore and Michigan Southern.¹ The Lake Shore is paralleled by a high-speed electric line from Cleveland to Painesville, a distance of 30 miles. In 1895, before the completion of the electric line, the average number of passen-

¹ F. T. Carlton, *Yale Review*, August, 1904.

gers carried per month by the Lake Shore between the two cities and intermediate points was 16,600; in 1902 it was 2,500. Although this statement is not representative it prepares us to learn that in 1905 the electric roads in Ohio, reporting (two-thirds of the entire mileage), earned ostensibly, above all charges, 10 per cent. upon their total outstanding stock.

1004. The 1907 report of the Census Bureau on *Street and Electric Railways* gives the gist of answers to some inquiries sent to 34 steam railroads regarding the effect of electric-railway competition. From these we learn that almost every railroad experiences a loss in business, four or five losing from 90 per cent. to all of the short haul passenger traffic. Railroad freight traffic, however, has suffered little.

1005. The trolleys' gain in Ohio and other Central states was not utterly the railroads' loss. Much riding on electrics is done at first for the mere novelty, and ultimately reverts to the steam roads. Much of trolley traffic, as we have said, results from the creation of new wants made appreciable by the means for satisfying them. By supplying good suburban service the suburbs are enlarged and multiplied, the "trolley habit" is formed, and so transportation business is created as well as diverted.

But, at best, the relation between electric and steam traction in the West is a competitive relation, and being such, the present state of the Western interurban systems is probably transitional. What will eventuate can only be surmised, but possibly a clue to the outcome may be had from New England.

1006. When President Mellen came East to assume direction of the New York, New Haven, and Hartford the trolleys of New England were a most sporadic group of companies working at sixes and sevens and developing in the haphazard fashion that enterprises will when they lack the direction of an informing purpose. In the last few years, in the face of well-grounded, perhaps well-meant, but nevertheless misdirected opposition, he has brought comparative order out of the chaos, and through the agency of holding companies in Connecticut, Massachusetts, and Rhode Island, has so organized and extended electric traction service that all people have benefited.

1007. The Eastern Development: Saturative. We are not concerned with the legal aspects of the contention that has arisen between the New Haven and the Commonwealth of Massachusetts in regard to the New Haven's trolley holdings, but it is season-

able to point out that the technical separation of the steam and electric systems will work out, as the New Haven's control of the Boston and Maine seems to be working out, in an extension of the agglutinative rather than the fusing or merging policy,—but always toward greater transportation units: more monopoly.

1008. Mr. Mellen's designation for the system of trolley development he has devised is appropriate: he calls it "saturation," that is to say, within the territory served by the New Haven road the trolley, practically eliminated as competitor, has been converted to a function of far greater capability for usefulness: that of tributary to the steam roads. In every physical respect the trolley is qualified to extend to minutest ramifications the system of trunk line and connecting and subsidiary branches long ago established by steam roads, and so "saturating" a territory with transportation service. The trolley is commercially and physically possible where the railroad is not. Independent of grade and running in single units and therefore more frequently and without the expense and detraction of drawing its own power generator with each unit, capable of rapid "pick up" or acceleration for service between way stations, and therefore capable of running its cars at short intervals with safety, it is no wonder that the railroads would sometimes gladly abandon their suburban service to trolley competitors or allies, were it possible, especially if hard pressed for adequate facilities to handle through traffic, and hampered in suburban rate-regulation by the indirect influence of low trolley tariffs.¹

1009. So the success of the New Haven's policy of assuming the operation of the trolleys in its territory is of extreme importance to the public. The population of Connecticut and Rhode Island is so ideally distributed that in those states the working of this trolley feeder system does not receive its most convincing test. If, however, one will examine maps of Massachusetts, such as accompany the reports of the Massachusetts Railroad Commission each year, showing the routes, built and projected, of electric railways in the state, he will observe in how many particulars the trolley feeders are contributing toward an order of things in railroad transportation better than we have yet seen. Should he take the pains to compare these maps for the past few years he will have the best possible graphic exposition of what the New Haven Road has done toward

¹ This has been the attitude of the Boston and Maine, if President Tuttle is reported correctly; and a traffic manager of the Boston and Albany has so expressed that railroad's position, in the presence of the writer.

the attainment of ideal transportation conditions. He will note that previous to Mr. Mellen's coming in 1903, the trolley roads, built for the most part as independent units and therefore under the necessity of being self-subsistent, were either urban systems or interurban connecting links between lines of towns strung along river valleys. This was particularly true in the western half of the state. These lines might be called laterals, for almost invariably, in the nature of the case, they paralleled the steam roads; and although bettering the accommodations of the communities they served, to some extent their revenues were taken out of the legitimate earnings of the steam roads.

1010. Since 1903 these laterals, to be sure, have been gradually extended, especially from east to west in preparation for electric service with New York State; but in addition transverse connections, not commercially possible under independent financing except in the more thickly settled eastern parts of the state, are uniting the latitudinal lines, making accessible new districts probably never to be reached by trains; and here and there in many places, townships that never before saw a steel rail are being tapped by branch trolley lines which are profitable only as parts in the large scheme of the whole. From now on almost every mile of trolley development in the western third of the state will mean the opening up of territory that is at present nearly unproductive, and most of it, especially in the Berkshire section, as beautiful, and in many other respects as desirable for purposes of living, as one could wish.

1011. But a comparison of maps does not show what has been accomplished by unification of ownership and management in the hands of the dominating railroad interest to lessen distances, to lessen also the frequency of transfers, to regulate the schedules, to improve the personnel and equipment, and in every other respect to raise the standard of trolley service. Interests associated with the New Haven have even secured a certificate of public necessity from the railroad commissioners to construct a direct high-speed interurban electric, more of the Western type, between Boston and Providence.

1012. The conclusion seems inevitable, that however hostile to this New Haven policy of railway "saturation," with its implication of monopoly, the people of Massachusetts may be, due in large measure to the fact that they will not harden themselves to the questionable methods that are thought to be employed in attaining the ultimate result, nevertheless the saturative principle represents

the highest development in transportation. At any rate, from a transportation standpoint, considering area, density of population, and geographical configuration, Massachusetts, Connecticut, and Rhode Island are probably as well served as any other territory of like size; and even in these states only a beginning has been made in the saturative policy of giving a community all the transportation service its population and commerce will bear.

1013. It is not necessary to go at any length into the further attenuation of the system of trunks and ramifications which makes for saturation, but the possibilities in this age of electricity are very great. The next step perhaps will be to devise a car that may run on rails or leave the tracks for the highway and thus make still more elastic the little traffic feelers thrust into the back country. Colorado seems to have something of the kind for mail delivery. In freight service we shall have removable trucks that can be loaded at the farmer's barn, taken by a motor "rover," (to coin a word), to the trolley line, and thence, if for a long haul, can be transferred intact to the freight truck of the steam train. Trolley cooperation also will be secured in the terminal transfer of passengers under unit of management. These are some of the many gains in comfort, economy, and convenience that we owe to street railway and steam cooperation.

1014. This saturative development is not yet to the exclusion of competitive development in the East. At present the Buffalo, Lockport, and Rochester is trying to be a competitor of the New York Central and the proposed Buffalo, Rochester, and Eastern, if it is built, may be a real competitor. But on the other hand, if the Delaware and Hudson has been actuated by any definite motive in its trolley purchases, it must have had before it the New England idea.

1015. **Electrification of Steam Roads.** Lastly there is the matter of the electrification of steam roads. For years small stretches of line in various parts of the country have been operated by electricity. The thought with all it implicates has been common railroad property for a greater length of time than most people imagine. Even now, by city ordinance, the New York Central and the New York, New Haven, and Hartford are not permitted to send steam locomotives for regular transportation purposes within the city limits of New York. The Central, and the New Haven, on the New York suburban divisions, and the West Shore, for suburban traffic, from Utica to Syracuse, have thoroughly tried out electricity as motive power

with results that are satisfactory except under very abnormal weather conditions—not to mention what has been done by the Illinois Central, the Pennsylvania, the Long Island, the Baltimore and Ohio, and the Burlington.

1016. Distinction Between Steam and Electric Securities. Who shall say, when the New Haven Road shall run its trains from New York to Boston by over-head wire, what are steam railroad securities and what trolley? Under which head shall we classify the obligations of the Lackawanna and Wyoming Valley Railroad, which has been built expressly for electrical equipment, both passenger and freight, but with the high standard of present steam railroad practice?

1017. If the general run of trolley bonds is not good, what an injustice to class with them the third-rail Aurora, Elgin, and Chicago, with its heavy, high-speed, vestibule express service across Illinois and over the Metropolitan Elevated into the heart of the business district of Chicago; but if we approve the third-rail Aurora, Elgin, and Chicago, must we stop at its excellent western trolley feeder, the Rockford and Interurban?

1018. The Investment Principal: Caveat Emptor. These illustrate the gradations from steam railroads and their securities to street railways and theirs.

From what has already been said it will be readily acknowledged that generalizations are of little avail as guides to street railway bond buying. When in 1903 the Massachusetts legislature let down the bars and admitted street railway securities for savings-bank investment it was under these provisos:—that the bonds should be approved by the Board of Savings-Bank Commissioners, that the railway should be incorporated under the (stringent) laws of the state, that it should be located wholly, or in part, therein, and have earned and paid regular dividends on all its outstanding stock of at least 5 per cent. per annum for the five years preceding. Some may find suggestions here to guide their own purchasing. Yet such are the vicissitudes of street railroading that several bond issues, originally approved, have become illegal holdings for the Massachusetts banks during the intervening years.

1019. Each security, therefore, must be judged individually, on its own merits, and not like municipal, equipment, or water bonds, in part by the excellencies of its class. The buyer may rest mainly upon the judgment of his bond house or make his own investigation. If he chooses to do the former, he is likely to find the house financially interested in the road, and although this tends to conservative.

financing it prejudices the source of his advice. If he chooses to do the latter, circumstances are once more against him. The supervision exercised over street railway companies by the public utility or railroad commissions of most states is quite perfunctory. Only in Vermont, Massachusetts, New York, and Wisconsin is there thorough-going oversight and control. Few companies make monthly reports public. New York State requires quarterly returns and Massachusetts, Connecticut, and Pennsylvania returns once a year, but most states make no publicity requirement at all. The Commerce Commission is less exacting with interstate electric than with interstate steam roads. Hitherto, perhaps for the example of industrial corporations, perhaps from the internal necessities of the case, a policy of reserve has usually obtained, but that is gradually becoming a thing of the past.

1020. Secondly, the anatomy of a street railway report is not as revelatory of true conditions as that of a steam road. The systems of bookkeeping have not been unified by interstate commission,—to the great detriment of sound comparisons.¹ The mathematics of street railway accounting is not yet the developed science it will become under stabler conditions.

1021. Overcapitalization. There can be no question, too, concerning the gross overcapitalization of the industry. Unfortunately the latest record for the country at large is of 1907 and therefore ancient history. The following tables have been constructed from the report of the Census Bureau:

Combined Capitalization of Operating and Lessor Companies

	1903	1907
Funded debt outstanding.....	\$ 992,709,139	\$1,677,063,240
Capital stock outstanding.....	1,315,572,960	2,097,708,856
Total capital liabilities.....	2,308,282,099	3,774,772,096
Investments other than street rail- ways and electric light plants..	152,513,997	374,664,197
Net capital liabilities including electric light plants.....	2,155,768,102	3,400,107,899
Miles of single track owned.....	22,389	33,834

¹ But the Street Railway Accountants' Association of America has prescribed a form of accounting more or less lived up to, and the great traction holding companies require uniform accounting of their subsidiaries. Wisconsin requires uniform accounting of electric railways in the state.

Net capital liabilities per mile of single track owned.....	\$	96,287	\$	100,495
Funded debt per mile of single track owned		44,339		49,568

1022. There are 330 companies that generate electricity for sale for light and power, but since they do not, as a rule, maintain separate plants and accounts for this purpose, it is impossible to ascertain what proportion of the net capital liabilities should be deducted therefor. Undoubtedly it is a small part of the whole, for the sale of electric current forms only $4\frac{1}{2}$ per cent. of the gross earnings of these companies. From various figures of itemized income, etc., from 118 of the companies it is safe to say that the electric railways of this country are capitalized, for purposes of transportation only, at about \$95,000 per mile, and of this \$95,000 about \$45,000 is bonded debt. In the level Ohio country where conditions favor economical construction, recent capitalization per mile of single track was \$76,442, of which \$27,526 was in bonds and \$48,916 in stock. Massachusetts lines were capitalized at \$50,772. The cost of construction per mile varies, perhaps, from \$15,000 to \$100,000 or more. In the opinion of engineers the average may be \$45,000 for good city properties and slightly less for high grade interurbans. We are then face to face with the fact that the average street railway bond, at best, represents no more than the original cost of the physical property.

1023. Without taking the common but wholly unjustifiable stand, maintained even by courts, that capitalization should represent only expenditure, or at least replacement value, one may yet pause over the significance of these figures. More than 50 per cent. of this trackage had been built during the preceding five years; there had been little time for any great increase in values due to realty improvement or even to franchise revaluation on the basis of increased earnings, or in general to the capitalizing of income. What is worse, much of the mileage had been built by men of inexperience in transportation matters, and in localities badly chosen. But, as we have seen, the trolley is a wonderful creator of transportation business, and it is by this item of new business and by skimping maintenance and depreciation charges while the roadbed is new, that many companies have been able to postpone the day of reckoning for overcapitalization. No doubt this skimping policy accounts, in part, for the change from the low operating ratio of 57.5 in 1902, to 60.1 in

1907. With the gradual adjustment to evitable expenditures this ratio will probably approach that of steam roads, which averages 66 per cent.

1024. The condition of street railroading in the United States in 1902 and 1907 as reflected in dividend and interest disbursements is to be seen from the following analyses:

Dividend and Interest Disbursements of Operating and Lessor Companies Combined

	1902	1907
Dividend paying common stock..	\$560,326,121	\$805,210,600
Amount paid on common stock..	\$ 28,737,887	\$ 44,960,796
Average rate per cent. for paying companies	5.1	5.6
Non-dividend paying common stock	\$627,316,660	\$971,709,476
Per cent. of all common stock not paying dividends	52	55
Dividend paying preferred stock.	\$ 83,869,055	\$207,718,830
Amount paid on preferred stock..	\$ 4,301,284	\$ 9,524,478
Average rate per cent. for paying companies	5.1	4.6
Non-dividend paying preferred stock	\$ 42,936,124	\$ 44,061,124
Per cent. of all preferred stock not paying dividends.....	32	35
Funded debt outstanding.....	\$992,709,139	\$1,677,063,240
Interest paid upon it.....	\$ 43,578,961	\$ 71,468,788
Percentage of interest disbursements to total debt.....	4.47	4.42
Amount of funded debt in default	No figures given	No figures given

1025. An industry that paid nothing on 35 per cent. of its preferred shares and on 55 per cent. of its common shares may hardly be said to have been in superior condition.¹ As to the disburse-

¹ Only 35.99 per cent. of all interstate steam railroad capital stock was non-dividend paying in 1909.

ments for interest it is impossible to obtain satisfactory statements from which to estimate what proportion of the funded debt was in default. Obviously 4.4 does not represent what was due on the total debt. 5.4 doubtless would be a closer approximation and perhaps even 6.4 per cent. Of 799 companies reporting in 1902, 566 had a total surplus for dividends of \$30,596,977, and 233 had total deficits of \$3,755,707. Although all companies with deficits were not bonded, presumably in 1902 between 10 and 15 per cent. of the street railway obligations in the United States were in default, and that was a year of great prosperity.¹ The Census Report naïvely says: "In preparing the income account and balance sheet the *majority* of companies charged the interest on funded debt as paid." (The italics are ours.) In 1907, 672 companies reported a total surplus of \$51,201,981, and 267 companies total deficits of \$10,861,695.

We have at hand recent figures for certain states. Massachusetts, which has been ridiculed in many quarters for the stringency of her public service corporation laws, returned only 36 companies out of 85, or 42 per cent., that were in a position to pay any dividends at all during the year ending Sept. 30, 1907. And what is worse the total net divisible income was only a little more than 5½ per cent. on the total outstanding stock. In New York State (omitting New York City), only 11 per cent. of the companies paid dividends during the year ending June 30, 1907, and 25 of the 76 companies showed a deficit after payment of fixed charges.

1026. Penny-Wise Financing. To analyze a typical income account would extend this paper unduly, but speaking categorically, it is a commonplace among accountants, that upon their present basis of capitalization and earnings it is not possible for street railways, as a whole, to make adequate charges for maintenance and depreciation, to deflect a sufficient proportion of earnings for improvement and reserve, and yet make a presentable return on the ostensible investment. Some or all of these items will be slighted. The readiest temptation is to economize on maintenance, where it will be least noticed for a time, and then with the help of new business to make good the unfinanced depreciation of the plant and to postpone the ultimate reckoning by capitalizing renewals and replacements, as improvements and extensions, and later, by paying interest on the new burden, from new business again to continue the process of usurious restitution *ad infinitum*. The per cent.

¹ Omitting Income "Bonds," only 5.1 of all railroad funded debt received no interest in 1909.

increase of miles of single track in the United States during the great construction period, from 1890 to 1902, was 178.1, and yet during the same period the increase in capital stock was 355.1 and of funded debt 424.7 and (published) cost of construction and equipment 456.7. The explanation of the discrepancy between the increase in mileage and the other items is to be found, of course, in this penny-wise financing under the burden of an inflated capitalization.

1027. It is the well-known policy of American steam railroads (as contrasted with English, for instance) to pay for even extraordinary betterments and extensions, in part at least, out of earnings. Because of this policy a great injustice is done our railroads in charging them in this generation with stock watering. But if there is any justice in the reproach it is when used of the trolleys. Even now this procrastinatory financing is coming into its own; street railway receiverships are common in the land, and doubtless there are, at present, more issues of street railway bonds in default than of any other class of securities dealt with in this book.

1028. **The Franchise: Its Life.** But to turn to investment problems,—the first consideration in purchasing street railway securities is the franchise. A steam railroad's right of way, once obtained, is its possession for all time; but the trolley, by invading the principal streets and highways, in most cases must accept its privileges as temporary, and must plan, finance, construct, and operate with the possibility of losing, in time, some portion of the results of its labors.¹ Sufficient pressure even may be brought to bear to curtail the charter life granted it by legislation. In any case, it is highly undesirable that a bond issue should mature at or very near the expiration of the franchise, yet a very large number do. The Chicago City Railway illustrates both points. Its charter, granted by the legislature, was to expire in 1958, but by reason of recent unsettled traction conditions in Chicago, it seemed to the company advisable to waive this right and accept the terms of a city ordinance granting a 20-year conditional franchise. Owing to the conditions surrounding the grant of the franchise the new first mortgage bonds of the company expire the same year as the franchise.

1029. It is, of course, even more undesirable to have the bonds

¹ This would not apply to the Tampa Electric Company with its 999-year franchise nor to the many companies with unlimited charter life, if the validity of these franchises can be maintained successfully.

mature after the expiration of the franchise. This actually happens in some cases. A variation of this mischance, likely to be overlooked, is in the case of the bonds of a holding company that is largely dependent on its subsidiaries for revenue. Sometimes the franchises of one or more of the subsidiaries expire before the maturity of the holding company bonds. In this event the degree of loss in security sustained by the bonds in question can be theoretically prefigured by calculating the ratio of earning power lost to the company by cessation of income from this source, should the particular subsidiary franchise not be renewed. If the date of its expiration is at some remove, it is possible that the amortization of the holding company bonds would lessen the interest charges to such degree that even with the loss of subsidiary revenue the margin of safety due to income would be proportionately as great as ever. For those who wish to work out this problem the Paducah Light and Traction Company is offered in illustration. The First Mortgage Collateral Trust 5s expire in 1935. There is a sinking fund of one per cent. per annum upon bonds issued, waivable until 1911. The railway and electric lighting franchises expire in 1924; the gas franchise is perpetual. Obviously this company is working at great disadvantage.

1030. One of the difficulties now faced by the United Railways of St. Louis is the expiration of the franchises of some of its subsidiaries. The company maintains that the grant of its own franchise (expiring in 1948), in the nature of the case, extends the franchises of its divisions. Unfortunately (from a legal viewpoint), the city will probably waive its claims in favor of a general scheme of compromise, involving other considerations, and the matter will not be threshed out in the courts.

1031. Interurban electric roads often run, like railroads, largely upon their own right-of-way, except at crossings and through streets, so that, with such companies, the franchise matter is of less moment.

1032. **The Franchise: Its Character.** Second for consideration to the life of the franchise is its character. Bond circulars seldom are sufficiently explicit as to the scope and import of its terms. Is it exclusive? Does it impose conditions or tribute, (e.g. an unjust excise tax), that work hardship to the grantee? Does the city or the state reserve the right to amend it? What are its terms as to transfers and tariffs? The Chicago company just mentioned and the Interborough Rapid Transit Company of New York are expressly

permitted, with proper reservations, to charge a five-cent fare. Other questions of like tenor will suggest themselves to the buyer.

1033. This five-cent fare, the fixed unit of price, especially in cities, for the commodity street railways have for sale, namely transportation, is an economic error that we will do well to rid ourselves of. Custom, charter restrictions, legislative enactment, and the very denominations of our currency help to maintain an inadjustable relation between cost and selling price that has worked much greater hardship for street than for steam roads. Many European cities, with more favorable currency denominations, and even Canadian cities, such as Toronto and Montreal, with currency like our own, have well-thought-out systems of transportation charge wherein some attempt is made to regulate price according to service rendered. It is to be noted with approval, as a break with tradition, that in Massachusetts the Railway Commission has recently authorized certain impoverished street railway companies to raise their unit of fare for the time being to six cents.

1034. It is customary to consider the railway franchise as part of the security, with "property, rights, etc.," behind the first or general mortgage bonds. If this assertion is put forward of any issue it will bear looking into. Public service corporations cannot transfer their franchises by mortgage assignment without legislative authority, which, however, is quite freely given. Many cities have passed ordinances specifically forbidding the assignment of street railway franchises. This does not prevent the making of mortgages in ordinary course, under general statutory authority, secured upon trackage and equipment, but in foreclosure the new owners will have to take their chances of obtaining municipal consent to the operation of the road.

1035. Importance of Amortization. Third, unless the charter life is without limit, it is extremely important that ample provision be made for the redemption of a large part of the issue by maturity, either through a sinking fund or through the annual recall of a percentage of the bonds. One is likely to overlook this matter, since it is such an unimportant aspect of steam road financing. Practically, it is of little general consequence whether a railroad bond ever matures—there are not a few that run well into the 21st century—for the corporate life of the railroad is everlasting and the demand for its activities undoubtedly permanent; but a trolley company, with an unrenovable franchise on its hands, is virtually dead; and the dead pay no debts.

1036. Importance of Territory Served. Fourth, let the buyer of electric railway bonds investigate most carefully the territory served. Other things being equal, a growing town or city serves his purpose best. With increase of population, wealth, and traffic will come a sure increase in the value of his security. His bonds will strengthen and profit by the further development of the country just as surely as did the early railroad bonds,—the 6 and 7 per cent. railroad bonds put out in the sixties.¹

1037. If the road is an interurban, let him be certain that it can offer real advantages in economy, speed, or comfort of travel as compared with competing steam roads if there are any, and that a prosperous rural or suburban community, with traffic possibilities, awaits proper development. This may seem trite, but there are to be found millions of dollars in street railway bonds that lack these assurances. Sectional distinctions, relative to soundness in street railway investment, cannot be drawn.

1038. Apart from the four special considerations mentioned, the bond buyer will, of course, take into account, as in the case of any corporation security, the character of the management, the earning power, the dividend record, and the future prospects. In particular he will analyze most carefully the income account. Another extremely helpful exercise for just discrimination,—and this will apply, although in less degree, to other classes of bonds,—is to become thoroughly familiar with some one company acknowledged by common consent to be entirely sound and flourishing, and with this as touchstone to test others. The Aurora, Elgin, and Chicago is suggested as such.

1039. Investment Characteristics. Finally, lest the picture be painted too darkly, let the investor not turn away because of the failings of the street railway class; let him remember that there are numbers of splendidly-equipped and well-operated companies, with records and capacity for earning beyond question,—the mortgage bonds of which, selling upon a basis of over one per cent. higher income yield than those of steam roads of the same character, have the advantage, in common with railroad bonds, of a readier market than many other securities of the same yield. An Ohio bond house that specializes in street railway securities of the Lake states offered,

¹ For a more detailed discussion of, and a more favorable attitude toward Interurbans, see "Electric Interurban Railway Bonds as Investments," by Edgar Van Deusen, in *Bonds as Investment Securities*, American Academy of Political and Social Science, Philadelphia, 1907.

in the summer of 1908, the first mortgage bonds of eleven companies in good standing, at an average income yield of almost six per cent. The average life of the bonds was nine years. One cannot do as well as that in the short time first mortgage bonds of Eastern street railways of the same grade.

1040. These, then, are the characteristics of street railway bonds: relatively poor security as a class, high yield upon the investment, and, considering the yield, a responsive market. Men of affairs, capable of diagnosing reports, who require a large return and yet a form of investment that is fairly convertible, find their needs met with well-selected street railway bonds.

CHAPTER XXVI

GAS COMPANY BONDS

1041. Importance of the Gas Industry. In the United States Census reports of 1905, the manufacture of gas ranked second in capitalization among all the industries recorded. Only for foundry and machine shop products was more money devoted. There were 1019 gas establishments with a total capital of about \$725,000,000. This will serve roughly to show the importance of gas manufacture in America.

1042. The Competition of Oil and Electricity. But gas is a staple in more senses than one. It has been in common use in our cities as an illuminant for nearly a hundred years. It has grown with the growth of population and in greater degree. For instance, from 1890 to 1900 the increase in the product, for all purposes, was 33 per cent.; the increase in population 21 per cent. It has always had nominal competition from other kinds of lighting. In the earlier days candles and oil lamps were the recourse of those who found gas not feasible or too dear. These modes of lighting bore a similar relation to gas that gas does now to electricity. It must be borne in mind that gas then was a luxury and had to be paid for as such. It was expensive to manufacture. One ton of anthracite coal of good quality would produce only 10,000 cubic feet of gas, for gas was simply the vapor distilled from coal under subjection to heat. The residue was discarded as worthless. It was a luxury also in the sense that it gave a vastly more convenient and superior light. To lessen the advantage oil lamp manufacture was revolutionized and ultimately brought to the state of comparative perfection attained in the present central-draft burners. But the development of the lamp, with its quadrupled efficiency, has been no hindrance to the gas industry; quite the contrary. It educated people to the freer use of light, not only in the assembly hall and street, where oil lamps were really inadequate, but in the home, the proper field for them. Both kinds of light profited.

1043. However, one no longer thinks of the oil lamp as the natural competitor of gas, but rather electricity; and the intending investor in gas securities may hesitate upon this very point. He need have no concern. Electricity is now the luxury and gas the staple, and economic history is, in part, repeating itself. Electricity, particularly for mercantile and public purposes, is educating the people to still freer use of light, and gas is profiting thereby. As gas, the newer mode of lighting, improved lamps, so electricity, the still newer mode, has improved gas light. The exacting requirements of a photometry that knew the arc light produced the Welsbach mantle, and the Welsbach mantle is in process of universalizing the application of incandescence to gas lighting.

1044. Observe this, too, in favor of gas lighting, that the limit of its capacity for improvement is not yet, and with the high-pressure intensified lighting system it is an open question whether it is not even supplanting its younger rival, electricity, in some of the very fields from which it was only recently ousted. This is not a brief for gas as against electricity. There are a remarkable number and variety of functions that electricity is being called upon to perform, as light and heat and power; but these functions, for the most part, do not trespass upon the functions of gas so much as they supplement them; they are rather the creations of a new standard of luxury which has been raised by knowledge of the latent capabilities of this new force. Therefore it is not an invidious comparison to state that London, Liverpool, Paris, and Berlin are now burning more gas than electricity for municipal lighting, and that Glasgow, five years or so ago, decided to employ thereafter only incandescent gas lighting for streets not then electrically illuminated. The tendency in our own cities is the same.

1045. The causes for this reversion to the older mode are several, and, of course, different in different cases. The one that comes first to mind is the improvement attained in the quality of light produced from gas, due to better gas, better burners, and better methods of reflection. But the matter of cost is all-important. Three-quarters of the illuminating gas now made in this country is water gas,—that is, gas produced by the contact of steam upon hot coals and then enriched by cannel coal, naphtha, or petroleum vapor. Among large companies the gross cost of manufacture (including wages) by this process runs from 25 cents to \$1.00, depending largely upon the price of coal. The average for the largest sixteen companies in Massachusetts is 53 cents, but this is very high. Of this amount

9 cents, or 17 per cent., represents the cost of the enrichers used to bring the gas up to the required standard of quality. It may be mentioned here, parenthetically, that incandescent gas lighting will dispense with the necessity of costly enriching agents, because light value in gas will no longer be the desideratum, but heat value. It is this present and prospective lowering of cost with improved quality and candle power and more economical combustion which electricity finds hard to combat. It does not now pay to sell electricity to the small consumer for a use of less than three hours per day. In view, therefore, of the facts presented, it is not surprising that men engaged in the conduct of both businesses aver that the use of electricity is no deterrent to the growth in consumption of gas.

1046. A tabulation for the years 1893, 1899, and 1902, of 61 prominent cities in the United States, all of which, of course, were supplied with electricity, shows the following results:

	1893	1899	1902
Total gas output			
in cubic feet..	24,547,888,450	34,098,912,029	47,661,899,700
Increase		9,551,023,579	13,562,987,671
Increase per cent.		39% in 6 yrs.	31% in 3 yrs.

There are too many factors entering into the composition of any such set of figures to make it satisfactory; but this much may be said:—as long as the consumption of gas increases at the rate of 10 per cent. a year in cities with well established sources of electrical supply the competition so set up is negligible, whether the increase in consumption of gas is due to freer use, decrease in cost, growth in population, or all combined.

1047. **Economic Development.** We have considered gas hitherto chiefly as an illuminant. We have observed the age and importance of the industry, its growth under stress of competition, and some causes for its successful issue therefrom. Other aspects remain which show additional causes for its present commercial well-being. Chief among these is the comparatively recent utilization of gas for purposes of power and heat (fuel gas), especially in those sections of the country where there is no bituminous or semi-bituminous coal.

1048. **Fuel Gas.** It is the only source of power for commercial purposes which can be used anywhere and everywhere without the aid of steam auxiliaries. On the other hand, it can generate all the

other kinds of commercial power, viz., steam, electricity, and compressed air.¹ It will develop more light, heat, and power to the ton of coal than that same coal can generate under boilers. It is the form of power most easily stored. It is smokeless.

1049. With these facts in mind and with the knowledge that gas engine building has kept pace with the general development of machinery building, we are prepared to learn that during the decade 1890-1900, the output of steam engines in the United States increased 90 per cent. and of gas and vapor-combustion engines over 1500 per cent.² But gas engines were infant prodigies in 1890. It is more to the point that in 1903, of the 45 companies in Ohio reporting an estimated consumption of gas for fuel equal to 2 per cent. of their total gas consumption, an average has been struck indicating that approximately one-third of all the gas manufactured in that state from coal was used for fuel. This figure is put forward with caution as the best obtainable from the companies' own reports, but the reports are merely managers' estimates and by no means exact. However, accurate or not, it suffices to show that the future of gas is not wholly dependent upon lighting. Fuel gas and gas used for fuel are not necessarily the same. Cooking now consumes the larger part of gas used for fuel and may, in time, require a larger output of gas than lighting itself.

1050. **The Residuals.** Another source of income is the utilization of by-products. Coke, coal-tar, and ammonia acids are now obtained from what was formerly mere waste. There are no means by which to ascertain what proportion of gross earnings is due to the sale of residuals—for the country at large,—but for the year 1906 the 16 gas companies of Massachusetts mentioned before, report income derived from residuals as over 5½ per cent. of the total; or, put in another way, 40 Massachusetts companies receive from the sale of their residuals, an average of 39 per cent. of the cost of their coal. This should be remembered in connection with the steady decline in gas-prices for the past 25 years and its effect upon the industry.

1051. In view, therefore, of the economic position of the gas industry, its continued growth, and the variety of activities that are dependent upon its service, it should not be surprising that companies operating under proper and normal conditions are con-

¹ Gasoline, liquid air, etc., as commercial agents, are of the future rather than of the present.

² The automobile came into common use only toward the close of the decade.

sistent and generous revenue earners. Now as to what constitutes proper and normal conditions.

1052. The annual reports of the Massachusetts Board of Gas and Electric Light Commissioners are the most studied and detailed that are issued regarding the principal two lighting industries. Any one at all concerned is obliged, sooner or later, to resort to them for reference; they are invaluable. It is because of their fullness that the figures for Massachusetts are used so extensively in this discussion. An analysis of the twenty-fifth report, covering the fiscal year 1908-09, will help to an understanding of what are the conditions favorable to successful gas-manufacture.

1053. *The Elements of Successful Operation.* Of the 75 companies operating in the state during the year, five only did not pay expenses, but 21 others did not earn "sufficient to warrant the declaration of any dividend." This does not seem a particularly favorable statement, but closer examination alters the case. Of the 49 dividend-payers only five pay dividends of 5 per cent. or less; 12 pay dividends of 12 per cent. or more; one pays 30 per cent.; another 31 per cent., and the average dividend for the paying companies is 10.2 per cent. This suggests that gas-companies, in Massachusetts at least, are either very good or very bad. The main reason for the bad is not far to seek. It is briefly put in the following table:

Non-Dividend Paying Companies (1906) in Massachusetts

	Number of Stockholders	Assessed Value of Property	Population Served
Maximum	74	\$438,200	37,830
Minimum	3	\$250	500 (Est.)
Average	12	\$47,866	7,717

1054. *Importance of Size and Population Served.* The most notable feature of this exhibit is the diminutive size of the unprofitable companies. Five of them are not even incorporated. The largest in this class, serving a population of 38,000, is the Haverhill Gas Light Company, which, until recently, was a large dividend payer, but as the result of some attempted financing by questionable methods has been temporarily under a cloud. The second largest, the Citizens Company of Quincy, supplies a population of only 28,000. The rest are in small towns, summer resorts, etc., where

they exist, presumably like rural telephone lines, more for the convenience of the citizens than for money-making purposes. The average number of stockholders bears this out.

1055. The Relation of Rates to Population. Manifestly, gas is a commodity that cannot be manufactured, distributed, and sold to advantage on a small scale. The rates charged by these weaker companies show this. Omitting from the table above those selling acetylene, the average gross price per thousand cubic feet is \$2.40. But the average selling price of the 16 largest companies in Massachusetts, (all of which, with the exception of the Haverhill Gas Light Company, are good dividend payers), is only \$1.16, or less than half.

1056. The Relation of Output to Population. Further analysis along the same lines but involving the figures for population in its relation to gas output, leads to the conclusion that in Massachusetts the consumption of gas in cities of 75,000 or less tends to vary inversely as the price, but in larger cities (as we found for the whole country in the decade 1890-1900) the consumption tends to increase in greater ratio than the population. A large population served usually indicates, of course, a company operating in a large city, for, unlike electricity, gas is very strictly limited in distributable area by both mechanical and commercial considerations. In cities of this population, implying the presence of extensive manufacturing and contiguity of buildings, especially those having many stories, there is felt the economy of concentration which lessens the cost of installation and maintenance, and increases the proportion of population served and therefore the per capita consumption. Under anything like the present conditions of heating and lighting we are then to expect that large and well established gas companies in cities of, let us say, over 75,000 population will increase their sales annually without interruption so long as the population they serve increases. It is as certain as the increase in freight tonnage and passenger traffic upon a trunk line, over a long period of years, and it is a great deal steadier.

1057. Still there are those who feel that lighting, especially as a science, is to see great changes in the near future,—changes that may unsettle the status of gas securities. It is not likely that the gas business will ever meet more radical changes than those it has already faced in the coming of electricity; but if so the result will certainly be the absorption of the younger industry or the creation of a new set of wants for it to supply. This is the present phase of

the competition of electricity and steam in transportation. In some sections it is being solved in the one way; in other sections in the other. Just as we find many gas and electric companies coalescing, the electric company being taken over by the older concern, to facilitate interchange of business, and to unify and economize management, so in New England the railroads have taken over the trolley systems and will eventually reap the benefit of their operation. Just as in other cities, the independent electric companies, finding themselves unable to serve the small consumer for lighting, in competition with gas, are devising ingenious labor-saving contrivances to broaden the demand for their current, so in the Lake region, the interurban trolley systems, working independently of the railroads, are creating a new kind of short haul freight and passenger traffic, which, by not cutting into the revenues of the railroads, is solving the problem of a competition that at one time looked serious.

1058. It should be understood, therefore, that the thing to emphasize, in purchasing gas securities, is not the question of competition, but the size of the company. With few other kinds of securities, except those of electric light companies, does the matter of size have so important a bearing on safety.

1059. **The Decline in Rates.** The future of gas prices is another matter of concern with some. Realizing the great reductions that are now being made, voluntarily, and by direction of legislatures and state commissions, people are inclined to be fearful that this industry will suffer at the hands of politicians and others to the extent perhaps of eating into reasonable profits. The publicity given to the difficulties of companies in our largest cities, notably New York, Boston, and Chicago, lends color to the objection.

1060. But whatever may be the present impulses to these reductions, the process of price-scaling is nothing new. From a careful survey of the rates of 172 companies in the principal cities of the United States, extending back over a period of 23 years, it is possible to state, with authority, that there is no present marked acceleration to the decline in prices. Rather, that the scaling has been fairly constant for the period except in such companies as had suddenly to meet the competition of natural gas. The average price for these 172 companies in 1885 was \$2.01; 11 years later, 1896, it was \$1.53, a loss of 48 cents; and 11 years after that, 1907, it was \$1.09, a further loss of 44 cents. So it will be seen that the

decline was somewhat greater for the earlier period than for the later, but fairly constant as respects the periods.¹

1061. The Relation of Rates to Profits. There are 64 companies in cities with a population of 25,000 or more selling gas at \$1.00, seven at 95 cents, 19 at 90 cents, 14 at 85 cents, 18 at 80 cents, 13 at 75 cents, five at 70 cents, one at 65 cents, six at 60 cents, and three, under exceptional conditions, at 50 cents.² Some of these companies are among the best; the large majority are on a regular dividend-paying basis. The Milwaukee Gas Company, one of the strongest in the country, with a perpetual monopoly of the business in its city, and a record of uninterrupted dividends for the past 47 years, sells gas for fuel and lighting at 60, 70, and 80 cents for the first, second, and third or more thousand feet, respectively. The Lynn (Mass.) Gas and Electric Company, paying 30 per cent. dividends in 1907, and 12 per cent. in 1908 and 1909, sells gas for all purposes and in any amounts at 85 cents net, and the Boston Consolidated Gas Company also.

1062. The conclusion is that the decline in prices is due to lowered costs made possible by more economical processes of manufacture, better business methods, a market for the by-products, and greater total and per capita consumption.

1063. It is quite possible that we have not yet reached bed-rock in the matter of rates. Indeed when manufacturing cost is so low as to permit the Massachusetts Pipe Line Company to make a 10-year contract to supply the Chelsea Gas Light Company with 48,000,000 cubic feet annually at thirty cents a thousand, there is no need of apprehension. And one need not fear confiscatory legislation.³ The immediate cause of reduced rates may, at times, be one or another form of compulsion, but back of it is the working of inexorable economic law, and as a whole, the decline in rates works for the best interests of the gas companies.

1064. Importance of Modern Management. Another requisite for most successful operation is modern management. It is hard to

¹ When prices for illuminating gas differed from those of fuel gas, only the former were taken. The existence of some companies does not extend back to 1885. These two facts are of no moment to the result.

² There is some duplication in these figures, for companies selling at more than one price have been recounted, e.g. the Milwaukee Company (by whose courtesy the paragraph is possible), but the excess is not important.

³ Cf. the recent decision of the courts respecting the Consolidated Gas Company of New York.

overestimate the value of a policy of aggressive advertising and public education in gas matters. Many concerns circulate among their customers pamphlets of instruction regarding the proper use and economy of gas; maintain sales departments with canvassers, and stores for the demonstration and sale at or near cost of gas appliances, and a corps of inspectors whose services are offered gratuitously to those in need of any sort of help in problems of lighting. The value of one feature of such management is significantly indicated by some figures from the recent annual report of the Springfield (Mass.) Gas Light Company. Operating in a group of towns of 90,000 population it furnishes fuel for 16,000 gas stoves.

THE BONDS

1065. The Bondholder's Point of View. It has seemed desirable in this chapter to enter into more detail than usual concerning the conduct of the business in question. There is a dearth of handy information about the financing of the gas industry. Little has been written from the bondholder's point of view. The tendency is to associate gas bonds with "industrials" and therefore they have lost caste, if they ever possessed it, with that uninspiring class of investors which buys "nothing but high-grade securities." As far as safety is concerned, first and good consolidated mortgage bonds of some of the companies mentioned here, or of many others that might be mentioned, are a higher grade of security than many trunk line first mortgage railroad bonds in the South and West, and are an infinitely better security than the great majority of railroad junior liens, or than the mortgage bonds of the street railways in the cities in which these gas companies operate.

1066. Security. We have recently passed through one of the regularly recurring periods of financial and commercial distress. Prices for everything except labor and the necessities of life have been severely scaled—bonds among them. As respects bonds, it is a question in what proportion the decline has been purely sympathetic, and due to monetary conditions, or due to real lessening of the margin of safety. But there is no question at all that the margin of safety has almost been wiped out in not a few railroad and street railway bonds: the two most popular kinds of public-service corporation bonds.

1067. The Effect of Hard Times. It is equally true that, so far as the effect upon earnings of general unsettled conditions is con-

cerned, the margin of safety is as great among the sound and thoroughly established water and water-power companies and gas companies as it was in 1905. In the case of water companies and water-power companies, as stated in the proper place, this is due to fixed minimum revenues, theoretically insured, so to speak, by their contracts with consumers, and on the other hand by a kind of operating charges (having little to do with wages and materials) that hardly varies from year to year. In the case of large gas companies in the great cities it is due to the fact that gas is no longer a commodity to be classed among the luxuries, but rather among the domestic necessities, and even economies. People do not curtail their light in hard times. If gas, as a fuel, should ever become predominantly commercial rather than domestic,—should be more generally employed to drive engines than to light rooms and cook food, the margin of safety for gas bonds might be affected. But no such development is to be foreseen during the life of present outstanding loans. The normal annual increase in gross business is about 10 per cent. Financial panics and physical catastrophes do not usually produce decreases in gross, but merely a lessened rate of increase. The operating expenses are somewhat more variable than those of hydro-electric power companies (because of the item materials purchased), and therefore exhibit less stability, but the result upon annual surplus is not very appreciable.

1068. Investment Suggestions. As regards gas securities, by implication the investor has been advised to buy only the mortgage bonds of large and thoroughly established companies in cities of 75,000 population and over; but the matter of population is relative. Cities in the South, for instance, with a large proportion of scattered poor-white or colored population should have that fact discounted, and some growing cities with less than 50,000 inhabitants are perfectly safe. We have already noted that the greater the congestion, the greater the per capita consumption. Often the increase in land values alone is a noteworthy reinforcement of mortgage security in growing cities. We have yet to hear of any such companies going to the wall in a business depression. As to franchises, their tenor is important in all public franchise corporations, although gas companies are not usually held in the law to be public service corporations. Many are operating under perpetual charters; some, like the Milwaukee Gas Company, have exclusive franchises and are a pure monopoly; others, like the Laclede Gas Company of St. Louis, are immune by the terms of their charters from rate

regulation by city or state. Of course the bonds should mature before the franchise. Many gas corporations are controlled through stock-ownership and run by large operating companies such as the American Light and Traction Company, the United Gas Improvement Company, the North American Company, and the Pacific Gas and Electric Company. This should insure the economical and efficient management we have spoken of and at the same time give the investor an inkling of the true equity in the concern above the bonds that interest him, for by a little inquiry he may learn what was paid by the holding company for the capital stock. Those to whom the boggy of competition with electricity looms large, may buy many good issues of consolidated companies that furnish their communities with both kinds of light.

1069. Market and Yield. Having found the bonds that most nearly satisfy his requirements, the investor should expect to obtain them at such price as to net him from $4\frac{1}{2}$ to $5\frac{1}{2}$ per cent., according to the condition of the bond market and the excellence of the security. If he purchases for business reserves or under any conditions requiring possible quick disposal he may find prominent issues for which there is always a broad and ready market,—indeed issues listed on the principal exchanges; although the fact that they are listed will not facilitate the sale so much as it will prove a convenience in ascertaining the approximate price he can obtain. But apart from certain issues, which, whether listed or not, sell at higher prices because of their broader market, the investor buys to hold, just as he buys the bonds of street railways, and of power companies, and of irrigation districts, and in so doing pays only for what he most desires: safety and high income. If he has to sell he anticipates the delay incident to the disposal of uncurrent securities, not expecting to get the selling conveniences for which he has not paid.

CHAPTER XXVII

WATER COMPANY BONDS

1070. Of all public service issues, none, perhaps, is more simple of understanding than Water Company Bonds. These are not to be confused with Water Power (sometimes called Hydro-electric Power) Bonds, nor with the water bonds issued by municipalities. What is meant are bonds issued by companies that supply to municipalities, corporations, and individuals the advantages of hydrant and faucet for delivering water piped primarily as liquid rather than as power.

1071. Conditions Affecting the Water Supply. Water companies are not so dependent on steadiness of flow as power companies, because it is so much easier to store the fluid than the energy; but the ultimate source of supply must be unfailing from one year to another. Steam generators may substitute energy when water-power fails, but there is no substitute for the supply of a water company. It ought never to fail. Therefore, the nature, extent, and permanency of the source, and the facilities for storage over a dry season require thorough investigation.

1072. There is no uniformity of law throughout the country as to the right to draw water from rivers and other sources of supply. Priority of occupancy and appropriation is the cardinal principle of the arid states. Legislation elsewhere tends to conserve the flow and protect the quality of water for the benefit of all. A bond buyer will wish to be satisfied as to the protection offered by the state to the drawing of water for the fundamental uses of the water company. By law and natural conditions the company should be safeguarded from subsequent appropriation of the supply for irrigation, the generation of power, etc.

1073. Since the use of water, even for drinking and other domestic purposes, requires a certain amount of energy of position, it is a pertinent question as affecting economy of operation how this head is obtained. The gravity system, sufficiently described in the name, is the most economical to instal and maintain. It is adapted, of course, to towns situated within reach of mountain heights.

1074. The pumping system, common in the flat country of the Middle West, is not only more expensive to instal and maintain, since it requires machinery and some labor, but it is uneconomical in the sense that two sets of pumps are necessary for uninterrupted service, especially when the pumping is directly into the mains, rather than into stand-pipes. The use of both systems by one water company is not infrequent.

1075. *The Question of Quality.* The water supply interests an investigator in other respects than in quantity, steadiness, and permanency. Water companies sometimes face a serious difficulty that is unknown to power companies, in the quality of the water which they serve. Again the presumption is in favor of the gravity system. Water coming from the heights, removed from settlement and manufacturing, is generally of satisfactory quality; the impurities are usually mechanical and can be removed by sedimentation in reservoirs and settling basins. But water pumped from rivers is likely to contain vegetable impurities which can be eliminated only by filtration. Therefore it is usual to maintain testing laboratories at the pumping stations to make frequent if not daily examination of the supply for both chemical and bacteriological impurities.

1076. Filtration, however, is not necessarily expensive; and the majority of modern plants are equipped with filtration systems. Consumers ordinarily do not object to paying for pure water; and a company's efforts to supply it, to the advantage of health and life, usually meet with adequate recognition and approval.

1077. In a considerable part of the West there is no potable water to deliver; the supply from the mains is too brackish. There may sometimes be relation between this fact and an unwillingness of the inhabitants, generally, to pipe from the new mains. In the long-settled East, rural communities, comfortably supplied with wells, may be reluctant to change because of prejudice, inertia, or frugality.

1078. The growth of a city increases the demand for water; but if by lack of proper foresight the source of supply has been located too near the city, the water may be contaminated. The well-known history of New York's public supply has analogues.

1079. It is of the utmost importance that the quality of water served be above suspicion. It is a most despicable trick of cut-throat finance to arouse in a community distrust of its water supply in the interest of a change of régime, as from private to municipal ownership;—or in order to depress the price of a company's se-

curities. Whatever chances of success the scheme has are best in insular communities.

1080. From the economic point of view, water companies are very favorably situated as to their supply. In a sense, water is their raw material, and is obtained free of cost except that of pumping and purifying. If the supply is good and permanent, earnings run no risk from price changes in the raw material. There may be transportation charges,—and right heavy,—as in the public works of Los Angeles, if the source is distant many miles; but the “cost of production,” as distinguished from the cost of plant and properties, is low in relation to earnings.

1081. Generally the water supply is a natural monopoly in that there is never a substitute for the raw material, and generally the company owns all the commercially practicable sources. Competition, relying on lessened costs or superior service, cannot, like Moses, strike the rock for this material. Less even than gas lighting, street railroading, and telephony, does water service lend itself to competition. In fact the writer knows of no city where there is competition in the same district. Large cities may be served by two or more companies,—London has six (now municipal) water companies, each of which operates in its own section,—but it is to be doubted if any cities have companies competing in the same section.

1082. Conditions Affecting the Water Demand. It is truly said that the demand for water is as certain and constant as the demand for food, and it is equally true that increase in demand is as certain as increase in the population of communities large enough to be served by water companies. Indeed the demand for piped water in this country is like population in this respect, that it never decreases. The question is merely as to the rate of increase. Therefore, the only instances in which we may fear that established water companies may fail for lack of demand for what they have to offer, is when the communities they serve are wiped out by some great catastrophe, or by the failure of the crops, product, or industry upon which the community thrived.

1083. Even the fire and earthquake in San Francisco, and the flood in Galveston, did not cause suspension of business by the waterworks companies of these cities. Although the dividend on the Spring Valley Water Company of San Francisco was suspended in 1907, the surplus for that year was over 300 per cent. of the previous highest surplus. We know of no waterworks company in

this country which has suspended business owing to a catastrophe.

1084. The Plant and the Business. When a water service has been intelligently instituted and built in good faith, the elements of chance and danger are remote from the other departments of the business. The plant itself is not subject to rapid depreciation, and it is almost immune from fire. Repairs and renewals made necessary by wear, or the progress of invention, are few. The mains, of cast iron pipe, have an indeterminately long life. Cyclones, floods, and conflagration will not affect them. Hardly anything but earthquakes can.

1085. The dependability of the water supply business is subject to the proviso that in the community there is a real need of piped water, and that the plant was honestly constructed of fair materials. Unfortunately, manufacturers of piping, pumps, or other material, and general contractors often covenant with a small town to supply it with water protection against fire, in order to find a profitable outlet for materials and labor. The building of waterworks offers an excellent opportunity to bury the evidences of cheap material, and construction and labor. Thus, in the past, the building of waterworks in this country has been overdone.

1086. This, at least, was the situation 20 years ago. In fact, there was a circular issued in 1886 by one of the leading houses devoted to the sale of water company bonds, calling attention to the fact that many ill-advised waterworks properties were being constructed, among which some were promoted for purposes of manipulation only. Since that time, however, the inevitable weeding-out process of intelligent competition has hindered such practices and at present bond buyers are not likely to suffer from them.

1087. The comparative simplicity of putting a water company on its feet and operating it until a customer is found for the plant and the securities has attracted many into the field who have not sufficient initiative, and capacity for organization, to undertake similar ventures in public lighting and transportation. Here lies the danger in water bonds. The safeguard (as always) is reliance in the painstaking and intelligent examination of the property and the company's condition which any of the better bond houses will give.

1088. In the simplicity of the business problems of the water companies one is reminded again of the water power companies. Neither have fire or labor troubles to contend with. When water

pipes are metered (as they should be, especially in pumping plants) then there is something to be done, but usually the office of a water company is as apathetic as the corridor of a country savings bank.

1089. Capitalization and Earnings. Without an engineer's report there is no way of ascertaining what is the fair capitalization for a water company, because the conditions under which the supply is obtained vary so widely. The necessary excess of net earnings over fixed charges can be smaller than in any other kind of private corporation because of the stability of earnings. It will be well to remember that the prime element of security is not material assets, such as those behind steamship and equipment bonds, easily convertible into money on foreclosure, but in the assurance of stable and increasing earnings, based on an inevitable demand for water. The per capita indebtedness of the company, computed on the population served, is a poor criterion of fair capitalization. An examination of 15 water companies in the United States serving communities of from 3,500 to 365,000 inhabitants shows a bonded debt per capita ranging from \$12.50 to \$78.88, and an average of \$32.33.

1090. The stability of operating and selling conditions is reflected in earnings. With a virtually costless raw material, and a reliable demand at a fixed rate, and freedom from competition, except from wells and similar sources of supply already established, it is not astonishing that the earnings of water companies are not affected by business depression. As long as the population of cities keeps increasing, so long should the earnings of established water companies increase in fair proportion. If anything further can strengthen the case, it may be recalled that water, particularly as supplied for domestic purposes, is paid for in advance, by reason of the initial deposit required; and all bills are paid at the offices of the company, so that it does not have even the expenses of collection. Water companies market their product also without the need or expense of a selling force, or of advertising.

1091. Management. But the inference is not that the business of supplying water to communities runs entirely of itself. The matter of management is important; only the importance lies in the friendly relation of the management to the municipality, rather than in the necessity of technical qualifications of a high order. Hence, local management is to be desired, when, as usually, that entails favorable effect upon local sentiment. If water is now supplied at a flat

rate, and it becomes advisable to introduce meters, or if there is hydrant or other municipal business to be had or kept, officials skilled in diplomacy, and not antagonistic to the voters or city government, greatly aid the company's welfare.

1092. **Contracts and Franchises.** In the large majority of companies the chief contract is with the city. The objects for which a municipality may need water are numerous. There are the ordinary uses to which water is put in any public building. Particularly water is needed for street hydrants: for sprinkling streets and extinguishing fires. The duration of this municipal contract, and the possibility of its abrogation if the terms are broken are matters to be considered if a large part of the company's income is derived from this source.

1093. Not only a considerate management but reasonably favorable rates will be necessary to insure a renewal of the contract on favorable terms, at its expiration, and to discourage any thought of starting a separate plant for the public uses of the city, if this is physically possible, or the thought of buying out the existing plant for municipal ownership.

1094. Although naturally, and inevitably, municipal ownership and operation of industries is economically unsound, nevertheless we have lived so long with the idea, that former instinctive prejudices are dying out, and when a real, or supposedly real, advantage from such ownership appears, public service corporations are in danger of their existence. Even in New England, this year, a hot wave combined with some scarcity and impurity of ice brings serious talk of public ice plants in Hartford and New Haven. In the former city, at least, the matter is before the common council. With much more right and likelihood will a city contemplate the absorption of a public service company that controls such a natural monopoly as the supply of water.

1095. Theoretically, at least, municipal ownership should not prejudice the interests of bondholders. It may even strengthen the security, because the city may guarantee the bonds in assuming the indebtedness; but, practically, any change in the *status quo* of a security is liable to work injury, at least for a time.

1096. The ideal franchise of any company is without time limit. Communities are coming to realize the value of their gifts of public rights, and seldom will renew them on terms as satisfactory as before. Therefore the longer the duration of the franchise the

better. If limited, it should outlast the life of the bonds by a few years at least.

1097. Another point in relation to contracts and franchises invites comment. If the company's charter requires in so many words that the water served must be pure, there opens the question of interpretation. Purity, as applied to water, the commercial product, is a relative term. It is conceivable that some ill-wisher, with ends to serve, might cause a company considerable trouble on this score, if it was worth while.

1098. *Amortization.* When the franchises are perpetual there is not that great need of the gradual amortization of the debt which obtains if the privilege of doing business expires within a few years of the debt's maturity. Although water company property is subject to slower depreciation than steamship, timber, and equipment properties, yet amortization should not be neglected, for one cannot speak too strongly of the propriety of instituting sinking funds, or of serial repayment for the protection of bond issues of all public service corporations of whatever kind, and whatever conditions may obtain, respecting the standing of the company. If water bonds are not safe without them, no kind is.

1099. It is for lack of sinking fund protection that the principal of the First Mortgage 6 per cent. bonds of the Escanaba (Mich.) Water Works Company, due on October 15, 1906, still remains unpaid, although interest at 5 and 6 per cent. is being irregularly paid and indorsed on the bonds. All this in the face of the fact that the net income for 1909 was reported as \$23,458.26, and the average net income for the past nine years as \$17,175.62, and that the company has recently expended \$40,000 upon a filter plant. There is nothing but lack of inclination to prevent the bondholders from stepping in and operating the property. But the trouble and expense of this proceeding would have been rendered unnecessary by the establishment of an adequate sinking fund.

1100. *Water Bonds in Foreclosure.* This leads to another advantage that water bonds possess in the comparative simplicity of operating the plant. If the bondholders cannot obtain full satisfaction in foreclosure proceedings, they might do worse than run the plant themselves. What is quite impossible in railroading is very feasible in this case.

1101. Viewed in all its aspects the purchase of the bonds of well-established water companies is to be encouraged, when convertibility is not essential to the investment. And even in con-

vertibility they are superior to irrigation, steamship, timber, real estate, and some other kinds of issues. If municipal water bonds are the best class of municipals, the bonds of private water are, with the possible exception of gas bonds, the best class of public service corporation securities.

CHAPTER XXVIII

WATER-POWER COMPANY BONDS

1102. Brevity overcomes propriety in the vernacular of business. We bow to custom and speak of *Street Railway Bonds* for convenience, when we mean something broader. So now instead of *Hydro-Electric Power Bonds*, the descriptive title, we write *Water Power Bonds* and mean something narrower.

The title "Hydro-Electric Power Bonds," however, is slightly too narrow for the subject in hand, since the sources from which companies properly associated with these securities derive their income is by no means confined to electricity generated from the fall of water. But the primary, and generally original, revenue is from hydro-electric power. As a complement to it steam-generated electric power from auxiliary stations is often produced in connection with rivers of great variability of flow, or rivers from which all possible power is immediately to be taken. These stations are usually emergency reserves, to fall back upon should the dam give way, or the water prove insufficient during a period of drought. Steam stations are not necessarily located near the water power, but rather where coal is procurable to best advantage, and this may be in the city where the power is principally marketed. A third and often important source of revenue is derived from the sale of hydraulic power to local manufactories at or near the falls. Naturally this form of power does not bring a high price—it is sometimes sold as low as \$4.50 per h.p.—but requiring only simple machinery and converting into profit what, at the time, would otherwise be waste water, it proves worthy of consideration. Another source of revenue, which may prove very important, though from the bondholders' standpoint highly speculative during the early stages of a company's development, is that derived from industrial operations conducted, directly or indirectly, through stock ownership by the power company itself.

1103. A notable instance is the Shawinigan Water and Power Company of Shawinigan Falls, Province of Quebec. This company, in its infancy, found itself in a wilderness with one of the greatest

natural water powers in the world. Potentially capable of over 100,000 h.p., its nearest market was Montreal, 85 miles away. The circumstances were such as to serve excellently for illustration of the possibilities of the various kinds of power. Obviously a steam auxiliary was unnecessary in the early stages of development, for by reason of the immense flowage and a drainage area as yet mostly undeforested, no scarcity of water at any season of the year was to be anticipated. A market for 10,000 h.p. was found at Montreal. High-tension, long-distance transmission lines carried it; and this proving entirely feasible, power was also transmitted to other almost equally distant points for lighting, mining, and smelting. At the falls the company also established and took a large or controlling interest in industries which manufactured products that were either best obtained by the employment of electricity, such as carbide and aluminum, or else adapted to the use of hydraulic power, such as pulp and paper. The establishment of local industries there has rapidly created a town with demands of its own for power and light, and even traction. Thus, by a multiplicity and variety of kinds of power, and kinds of power contracts, and kinds of markets, the company is strongly fortifying itself against possible future reverses.¹

1104. Water-Power and Steam-Power Plants. Steam-power plants, serviceable as auxiliaries, may prove dangerous as competitors. Local physical and franchise conditions will determine. The incentive to competition from steam-generators is the comparatively low first cost, which we will say averages \$75 per h.p. as compared with \$150 for the hydro-electric plant. But current costs all favor the later, for coal, which has an efficiency of about 25 per cent; must be bought, but water preserves about 75 per cent. of its efficiency through the turbines.

1105. The Bonds: Nature of the Security. It will be acknowledged readily that the purchase of electric power bonds should be attended with more detailed scrutiny than is required for most other classes. It is advisable to remember this, because they are usually offered the public during the company's construction period; but even with these handicaps the element of risk need not discourage those who are willing to take the necessary pains to investigate all the conditions affecting the security. What these conditions are, broadly speaking, is developed in the following paragraphs.

¹ About a year ago the company purchased \$700,000 of the stock of its chief distributor, the Montreal Light, Heat, and Power Company.

1106. The security for hydro-electric power bonds is revenue derived from the sale of power. This revenue is determined by the extent and reliability of the power-supply and of the power-demand. Fortunately both these factors are determinable in the main when the bonds are issued. If not, the bonds shouldn't be bought until conditions are settled. For convenience, the factors will be discussed under this two-fold classification.

1107. Conditions Affecting the Power-Supply. The prime necessity, of course, is water,—for conversion into foot-pounds or horse-power. Preliminary estimates of a stream's potential horse-power often prove wide of the mark. Engineer's optimism, as it appears on the preliminary offering, should for safety's sake be somewhat discounted. The figures may err as often by understating as by overstating the facts, but a power proposition that does not look attractive, even after reasonable deductions for the sake of conservatism, is not a desirable investment. In figuring earning capacity one should also deduct the necessary and very generous percentage of waste involved in converting the energy of falling water into electricity for distribution, and in transmitting the electricity to its markets; and one should ascertain whether in the first place the rating was based upon the minimum flow of the river through a series of years past, and for how many consecutive years readings had been taken, and whether the readings were from government or private gauging, and who, in general, was responsible for the hydrography upon which the estimates were based.

1108. The Drainage Area. Even if a river's flow bears a good record in the past, future conditions are quite another matter. Perhaps the source of supply is concentrated in a few springs which future deforestation may dry up, or perhaps the topography of the country is such that the head waters may be diverted, without legal redress, for purposes of irrigation, etc. It is well to have as many thousands of square miles of drainage area as possible. Mountain sources are excellent, for melting snows in summertime bring dependable reinforcement to the otherwise dwindling flow. In these respects nature favors the great Montana power-plants on the Missouri River, for the Missouri's head waters are in the snows of the Rockies and her flow greatest during the warm months when the requirements for irrigation would otherwise be embarrassing. One of the causes for the ultimate Pacific Coast supremacy of the cities of Puget Sound is the unlimited and unfailing source of electrical power in the nearby snow-capped Cascade Range. But although

mountain sources are a welcome reinforcement in the dry season they do not necessarily tend to steadiness in flow, as the Missouri amply demonstrates. In this respect there is a great variability among rivers.

1109. **The Storage Reservoir.** It is to the ultimate sources of water supply such as mentioned that one must look for the amount and stability of flow from month to month and season to season. The daily flow is regulated to avoid waste by creating an immediate and artificial source and storage of supply. In estimating potential horse-power engineers figure, as a rule, upon a ten-hour day, but under ordinary conditions of nature, the water during the other fourteen hours is not lost, but stored behind the dam in a reservoir which is usually an enlargement of the river and dependent for its continence upon the banks of the river and the dam-wall. When water is low, the reservoir level is raised by the erection of flash-boards upon the crest of the dam. The pondage, or capacity, of this reservoir is of the utmost moment in tiding the company over a period of dry weather and in determining the power-capacity of the plant. Particularly is this true of those sections of the country that have a dry season. One should assure himself that all condemnation proceedings covering this area have been brought to successful conclusion and that all other necessary riparian rights, both up and down stream, have been secured without possible future liability. Some rivers, of course, have such contour that the storage of water is impossible.

1110. **The Power-Plant Construction.** Then, as to the dam itself, and the power-house,—it sometimes happens that quicksand is encountered in the bed of the river, or some other deterrent to a solid foundation for the dam. Even preliminary borings do not always discover these weaknesses. It is well if the site of the dam has a rock ledge for a wall-foundation, and the rockier the natural formation of the storage basin the better. In northern water-powers frazil, or anchor, ice often has been a serious menace to efficiency in late winter, but this difficulty is now more easily overcome. The deposit of silt is another obstruction. Some sites are of such formation that the ice and silt factors are negligible. The power-house should be so situated that it would not be carried away if the dam should go. It seems almost as if no perfection of masonry or mathematics could achieve an absolutely sure resistance to the force of accumulated waters. Herein is the greatest element of chance concerning water-power construction; the most approved

modern work occasionally goes down before an overwhelming flood. From this cause, when a series of dams is situated upon the same river, the upper ones are a menace to those down stream.

1111. Herein lies the greatest risk in purchasing water-power securities when the plant is in the construction stage. Although the number of physical mishaps is relatively small, sometimes they seem as unforeseeable and unpreventable as earthquakes and tidal waves.

1112. The corollary evil is that estimates of construction, figured with great care and in good faith, will sometimes fall short of the actual expense in such an amount that when the plant is completed at the additional cost it cannot earn a fair return on the capitalization. This is the dilemma of a well-known Southern property. \$4,000,000 has been spent on it—all the original estimate called for,—and \$3,000,000 or \$4,000,000 more is needed. But in this case the company disregarded the correct estimate of the construction offered by one of the best hydro-electric engineers in the country, in favor of the lower and more agreeable estimate of less capable advisers.

1113. Conditions Affecting the Power Demand. Granting that the company in question makes a satisfactory showing in all respects affecting its power supply, it is equally important that it be able to meet the requirements of profitable demand, for doubtless many more companies suffer from commercial, than from engineering imperfections.

1114. The Power Market. The broadest business consideration is the location and character of the market. The proximity of a city is desirable though not imperative, as we have seen. The delivery of power one hundred miles from the source of supply is no longer an experiment. If men financially interested in the power company control neighboring industries requiring its product, as is often the case, so much the better, for enlightened cooperation results between producers and consumers. Certain districts, by reason of their natural resources, and certain industries, are practically dependent upon electric power to do business in competition at a profit. This is getting to be particularly so in mining and smelting, and for all operations requiring portable power. The South finds it highly desirable in the cotton industry. The mountainous Northwest will soon demand it for transportation owing to the greater tractive power of electricity. In fact, to the very minutest of domestic employments, the market for electricity is

broadening to such an extent that, in time, every volt, one may say, will be in requisition throughout the country. The age of steam is surely passing. But mines are eventually worked out, and mills will shut down, so the investor will see to it that a diversity of interests is responsible for the revenues of the company to which his money is loaned. Not too great a proportion of the power should be sold for any one object or to any one organization.

1115. In estimating the amount of power which should be taken by a certain industry or community, one cannot count on securing the custom of all those to whose profit it certainly would be to turn from steam power or steam-generated electric power to hydro-electric. Small manufacturers are often inert and skeptical, and averse on general principles to capital expenditures. The process of enlightenment is slow. In some instances it may be found that for certain technical reasons the proposed change would be an advantage more apparent than real. For instance, whatever the local price of coal, oil, or electricity, woodworking plants often will find it cheaper to consume their own waste for power rather than to purchase power in the open market. Therefore, weight should be given to the estimates of none but experienced electrical engineers, in considering the market for power.

1116. Competition. Since the contracts for power are usually of shorter duration than the life of the bonds, a renewal upon favorable terms is best safeguarded by the absence of competition. The State of Washington, the Niagara zone, and the Ottawa River District, Province of Ontario, Canada, are open to criticism in this respect. On the other hand this disadvantage is often offset by the certain future growth in demand for power. Competition, again, may be mechanically possible, but commercially impracticable, or may be politically stifled by apparently exclusive franchises, only to be resuscitated, as recently in Montreal, under a different dispensation. Each case must be settled upon its merits. The Montreal situation is illustrative of the whole matter. The Montreal Light, Heat, and Power Company, which has had a monopoly of the business in Montreal proper, has been selling power there at \$47. The Canadian Power Company, which has secured entrance, will no doubt cut into that price, but the position of the older company is in no way imperiled, for 160,000 h.p., or more than both of these companies

will produce, is now being manufactured from coal at higher than \$47 cost. Therefore, apart from new power-demand, both companies can look to this field for business.

1117. But in Montreal, and Northern communities generally, the mere fact that electric power is cheaper than coal power is not necessarily sufficient to warrant its employment. Many industries require heat as well as power. For instance, the four-drinier machines of the paper companies are regularly run by steam-power, because rolls must be heated and the steam can advantageously be used for this purpose after being passed through an engine to give the necessary power.

1118. *Nature of the Contracts.* In order to meet the contingencies that have been mentioned and to avoid the consequences of commercial depression, it is well for a new company to be tied up with long time contracts which of themselves will pay a large proportion of the fixed charges. There are two sides, however, to this long time contract matter and the layman is likely to overlook the other. A company in its infancy is not often in a position to dictate, and its early contracts are not usually on as good terms as its later ones. Prices for hydro-electric power are steadily rising with the increase in cost of coal and with the growth of the country. A power company does well to have some short-term contracts maturing in such way as to adjust themselves to bettering conditions on much the same principle that a trust fund distributes the maturities of its loans. There are companies with long 10,000 h.p. contracts outstanding, which they were glad to sign a decade ago, but to be released from which now would be well worth \$50,000 a year to them. The power company should be protected in its contracts by a clause making them temporarily voidable in case of "circumstances beyond control." The intending bond purchaser may seem hypercritical, but no harm is done, if the company is dependent upon one or two big contracts, should he require the specific terms in which they are couched. Much depends upon the contract. As to actual horse-power prices, conditions vary so that no general statement avails. Prices range from \$10 to \$50, but either extreme looks suspicious.

1119. *Responsibility of the Lessees.* As much more depends on the other parties to the contract. In the case of small or new power companies, a glance at the lessees' rating with the commercial agencies will not come amiss.

All the investigation that has been advised is, of course, not

necessary in purchasing the first mortgage bonds of established and prosperous power companies.

1120. The Bonds: Income Yield. But, as suggested, one of the most favorable features about investment in hydro-electric power bonds is the relative accuracy with which future results may be forecasted from given conditions, even before one stone has been laid upon another. Accountants, collaborating with engineers, can estimate with some precision, after the major power contracts have been signed, what will be the minimum income of the company after a year's operation. This is not possible, of course, in the case of many other kinds of companies that ordinarily issue bonds, for no other kinds have a minimum revenue insured by contracts. Hydro-electric power bonds are therefore peculiarly adapted to purchase in the underwriting and construction periods, when as five or six per cents. they may be had at a generous discount and sometimes with a stock bonus. So purchased they are what the papers call "a businessman's investment," meaning by this, a good conservative speculation.

1121. Other Investment Advantages. Beside the distinguishing characteristics of an insured minimum revenue, electric power companies are peculiarly free from several of the ordinary embarrassments of most public-service corporations. The franchises of the former are usually perpetual, and in some instances, granted by special acts of Congress. At one remove from popular contact, power companies are not very liable to political attack on their prices and business conduct. They are, in the nature of the case, not directly subject in any great degree to labor troubles, fire, or legislation, nor, except as holding companies, especially amenable to the ills of business depression. Once constructed, equipped, and paid for with the proceeds of the sale of securities, further expenditures can usually be met out of income, or at any rate, the entanglements of a complicated system of funded indebtedness can be avoided. Therefore the accounting is easily followed and the company's condition ascertainable by its bond creditors.

1122. The Operating Ratio. With proper capitalization the operating and fixed charges should bear a low ratio to gross earnings, as compared, for instance, with railroad and street railway companies, and in relation to stability the ratio may be expected to vary less than that of railroads and more than that of street railways. For a decade the average operating ratio of the interstate railroads of the country has run from 64 to 69 per cent. The average

ratio of purely hydro-electric companies is probably between 25 and 35 per cent. The constancy of the ratio is determined by the character of the contracts, for the operating charges are comparatively free from the variables: material and labor. This low and stable operating ratio is the impressive advantage to offset the uncertainties of the construction period.

1123. Appreciation. Bonds of good companies, bought with care during the period of development, need only the improved demand that comes when confidence is established by substantial earnings and a fair dividend record, to show moderate appreciation.

1124. Marketability and Investment Value. Somewhat removed from speculative influences they are not subject to the extremes in price that offer opportunities for profit and loss, in liquidation. The market is narrow. Power companies are not in the public eye; the average capitalization is small; they are usually fostered by a single banking house; in most states they are not subject to supervisory control by commission, and, in general, they are not in position to profit market-wise by publicity. Yet the bonds of successful companies do not go begging, except in the very worst of times, and perhaps they suffer less depreciation than classes of securities in which ownership is more frequently transferred. Water-power bonds, then, are a particularly desirable investment for those who are capable of making sound, independent investigations, and who seek a large return with reasonable security, rather than a high degree of convertibility.

CHAPTER XXIX

REAL ESTATE BONDS

1125. A class of securities has recently sprung into notice, particularly in New York City, which, although not new to this country, and indeed quite common in Europe for many years past, is of such recent vogue with us as to have received less attention from financial writers than present circumstances warrant. This class may be called Real Estate Bonds. As the title suggests, the bonds are the obligations of companies doing more or less of a real estate business, whether as principals or as agents; and the ultimate security behind the bonds is real estate, which, up to the present time, has been that situated, for the most part, within, or upon the outskirts of large cities. Much is made by real estate companies of the kind of security back of the bonds they offer. Nothing, they say, can be more stable and permanent than values attaching to ground, especially in cities, for the steady and yet rapid increase in metropolitan realty values, extending in America over at least a century, has no parallel in other kinds of wealth. As illustration, for many consecutive decades the tax records of New York exhibit an average yearly increase in *land* values for each decade of over 6 per cent. Since 1875 the *total* assessed value of real estate in Manhattan has increased at the rate of over 32 per cent. every five years.¹

1126. **The Two Kinds of Bonds.** Real Estate Bonds are, in general, the outcome of one or the other of two entirely distinct situations. The commoner and more strictly commercial involves the organization of a company with sufficient capital to acquire property for improvement, or the equity in such property, and the issuance of the company's notes (euphoniously called "bonds"), against the cost or equity. The rentals usually will much more than offset the interest charges; and the residue, together with the proceeds from the sale of the debentures, will yield a working balance with which to purchase a second parcel or group of parcels,

¹ Including Wards 23 and 24, which before the consolidation were a part of the Bronx.

subject to improvement, and so on *ad infinitum*. The denomination of these debentures is usually multiples of \$100, and the interest rate 6 per cent., and the selling price par.

1127. The other and better situation is that of a company acting more particularly as mortgage brokers, which acquires a number of real estate first mortgages, has them guaranteed, perhaps, in another company (which should be absolutely independent, but seldom is), and issues against them bonds to the amount of the mortgages. These bonds are rightly called "First Mortgage Certificates," and are practically the same as first mortgage bonds. This kind of real estate mortgage bond is now common throughout the greater part of Continental Europe. Its history is unimpeachable and it ranks in security with government and municipal issues. Since the issuing company's direct profit lies in the difference between the rate yielded by the mortgages and the rate paid on the certificates issued the denomination of the certificates or bonds is likely to be less than 5 per cent.; say 4½ per cent. Like mortgages, the certificates are usually sold at par.

1128. It is patent that the first class we are considering is composed of strictly speculative, and the second class of strictly investment issues. Both have excellent records thus far, due partly to the character of the companies operating on these plans, partly to their financial connections, and partly to their fields of operation; but no Real Estate Bonds should be bought without even closer scrutiny than is given the ordinary security; for they are seldom prepared and sold by experienced banking houses, and in this country they have not had the "seasoning" that only time and test can give a class of securities.

1129. In common with industrial issues, Real Estate Bonds suffer from the lack of publicity and supervision which state commissions exercise over public service corporations and their obligations. A possible source of future trouble is to be expected in the fact that if Real Estate Bonds should become common, numberless small companies would rush into the field and issue worthless paper on which to float their enterprises. As yet, people are so suspicious that it takes a bond with some merit to sell. Brains and capital are required to start an industrial or semi-public enterprise in this day of commercial combinations; but anybody with a dollar can enter the real estate business and for a time make a show on slender equities.

1130. **Real Estate Debentures.** The legal status of the first class

of Real Estate Bonds is not usually presented to the investor with entire candor. A railroad company issuing unsecured junior obligations which are merely notes, frankly calls them debentures. We seldom see Real Estate Bonds so entitled. In the interest of sound finance it is desirable to secure and preserve an accurate and uniform nomenclature. The general characteristics of Debentures, as understood in the United States, are treated in Chapter IX.

1131. Security. Real Estate Debentures, usually called "bonds" or "certificates," are a direct, but unsecured charge upon the assets of the company. It is imperative to know the nature of these assets. They will probably be found to consist chiefly of real estate and investments in mortgages. A large proportion of the real estate should be rental property in developed sections of great cities. A large proportion of the rental property should be business property. The amount of assets in cash or demand loans should be sufficient to meet, not only the immediate interest requirements, and the probable demands of those bondholders who may choose to avail themselves of any delayed redemption clause in their mortgage deed, but also to carry out, in times of business depression, without liquidation of the more permanent assets, the company's immediate undertakings for the development of its unimproved property, if it has any.

1132. The ratio of bond liability to rental property assets should be noted, and also the amount of mortgages upon the property owned,—especially upon the rental property. For it should not be forgotten that these mortgages are obligations upon the company prior to its outstanding Debentures. It should also be remembered that the bondholders, who may have loaned the company millions, perhaps several times its capital, have no voice in the company's management, and that there is nothing but the good faith of the company to restrict within reasonable bounds the amount of either these prior mortgages or the bonds themselves. The bonds are probably an unlimited issue. Since the bonds are not mortgage securities, and could not be enforced by foreclosure against specific property, their security is dependent upon the general health of the company. Having no voting power they compare unfavorably, in some respects, with cumulative preferred stock, and as mandatory charges they sap the credit of the company in a way that preferred stocks do not.

1133. Net Yield. With these disadvantages in mind it is not unnatural that the yield of the Debentures, in ordinary times, is

from 6 to 7 per cent. If the bonds were issued as cumulative preferred stock, the position of the company as respects these securities would be stronger, for in times of real estate depression dividends could be passed temporarily; but since the interest on Debentures is as much an obligation as the principal, the company under these conditions would be obliged to sell some of its holdings at a most disadvantageous time, or else by mortgaging them still further, to weaken the security in order to maintain interest payments. Under the circumstances 6 per cent. is none too much to pay in interest.

1134. Negotiability. Few classes of bonds (if any) receiving public recognition have a narrower market. Since the security in each case is dependent upon the character of the company, and since the conditions under which each company works are so distinct, the bonds can have no recognized and current value as a class. To offset this disadvantage, it is customary to insert a redemption clause permitting the owner to liquidate the bond a year or two after purchase upon a *few months'* notice, by paying a considerable bonus. Hedged with such restrictions the redemption feature loses the greater part of its value; for if one redeems his bonds, the premium offsets a large part of the interest obtained; and the investor would get no more, if as much, on his money for the period, than if he had left it in the savings bank.

1135. Suppose the issuing company offers to redeem a loan, bought at par, any time after two years, for such a price as will net the investor 3 per cent.,—what he might obtain if he had it in a bank on call. We will say that seven years later the investor is obliged to avail himself of this redemption pledge. If the bonds bore 6 per cent. interest the company would have paid him 42 per cent. in all; but by redeeming the bonds they are under obligation to pay him only 3 per cent. Therefore he must return 21 per cent., or in other words, the company redeems his bond at 79 and interest. In the legitimate bond business this redemption clause would be called a "joker."

1136. Duration and Appreciation. As collateral, little can be said in favor of Real Estate Debentures. A bank looks, not only for good security, but also for a reasonably responsive market, and dislikes to take the trouble to investigate unknown securities.

Another peculiarity is that, since Real Estate Debentures are ordinarily of unlimited issue, they often have no fixed maturity as an issue, but are retired 10 or 15 years after the date

of purchase. Moreover, they are almost invariably subject to call at par after a few years. The early maturity, the possibility of redemption, the unlimited nature of the issue, and the narrowness of the market, make appreciation next to impossible.

1137. Record and Future. The record of these Debentures has been good. The big real estate and holding companies in our large cities have fairly constant factors to deal with,—barring conflagrations. Fire and business depression are the two greatest unpreventable dangers; insurance will largely guard against the one, and an ample liquid surplus lessen the other. Debentures are now frequently put forth with sinking fund provisions. But what is needed to give the best standing possible to the bonds is the mediation of a supervising trust company acting under a trust agreement which contains clauses restricting, in some measure, the companies' plenary power to create debts. The Debentures are never likely to become a merchantable commodity until they are issued with such standard forms and safeguards as to be acceptable to bond houses. At present they are bought as mortgages are, in the comfortable illusion that they are not speculative, and not subject to fluctuation in value. All arguments to that effect by the issuing real estate companies are ingenuous and incite, among the banking fraternity, distrust of those who make them.

1138. Real Estate Mortgage Bonds. If in strict terminology, the first class should be called Real Estate Debentures, the second should be entitled Real Estate Collateral Trust Mortgage Bonds. That is to say, the bonds are secured by a lien on first mortgages.

1139. Security. Issued in the manner we stated at the outset, the considerations to engage the investor are few, but should be well looked into. Since the selling company makes its direct profit not in commissions nor in bond "watering," but in the difference in yield between the first mortgages and the bonds, there is necessarily the temptation to put up as collateral, mortgages with a high interest rate. These may not usually be had upon desirable central income property, or if so, only because an undue amount has been loaned upon the piece. Therefore, this first mortgage collateral may well have the payment of principal and interest guaranteed by another and independent company in unquestioned standing; and it goes without saying that the validity of both mortgage deeds and property titles should likewise be guaranteed. Many guarantees, however, are of such a provisional nature as to be worthless. No qualifications should be accepted. It is unfortunately the case that

the guaranteeing company is usually interested either in the issuing company or in the mortgages. It, therefore, results that all the mortgages are guaranteed in the one company; but it would strengthen the bonds if the guaranty were distributed among several companies in the manner of insurance underwriting.

1140. There is a sense, however, in which a degree of greater security is obtained by distribution, in that the collateral behind the bonds is mortgages on more than one piece of property.

1141. In the nature of the case, as the collateral mortgages expire, others must be substituted to preserve the integrity of the security. An investor cannot keep track of shifting collateral, nor can he know the correctness of the company's property appraisal, from which the amounts of the mortgages are determined. From the first of these weaknesses the usual collateral trust bond (which does not permit the substitution of collateral), is exempt. But from another standpoint a shifting mortgage collateral is not a weakness, since, if the mortgaged property deteriorates, better mortgages may be substituted when the deteriorated mortgage expires. Both classes of Real Estate Bonds demand the repose of much confidence in the issuing company.

1142. To a certain extent, the nature of the collateral, and the investment policy of the company, may be judged by the terms of the trust agreement given by the Mortgage Bond Company to the trustee for the bondholders. These terms will have to do with the kinds and locality of properties that will be acceptable, the maximum ratio of the mortgage to the appraised value of each property, and matters concerning insurance and a proper distribution of risk.

1143. **Net Yield.** When bonds are thus secured by guaranteed first mortgages upon real estate they may be tax-exempt within the state, as in New York, and bring a correspondingly better price. Or viewed in another way, they are a substitute in convenient denominations for mortgages, and under proper auspices have the same grade of security, and therefore sell at approximately the same income return as high grade guaranteed mortgages, namely about $4\frac{1}{2}$ per cent., in the East.

1144. **Denomination.** They have no great advantages over regular guaranteed real estate mortgages, except this of denomination. The best sort of security for any loan is one with a known value and a known market. Central business property generally has both, broadly speaking. But first mortgages cannot be had in

small amounts upon such property. It is the highly useful function of the First Mortgage Real Estate Bond to give the same sort of real estate for security to the man with \$500 or \$2,500 to invest as he has who loans \$250,000.

1145. Negotiability. Until Real Estate Bonds are handled to a larger extent by bond houses, and have a greater vogue, the market must ordinarily lie in the issuing company. It is possible in the first class of Real Estate Bonds, i.e. Debentures, for the company to insert a clause permitting their redemption at holder's option, after a term of years, and upon long notice, because the assets against the bonds are salable property, and heavy demands could be met as a bank meets them: by liquidation. But in the second class, conditions are not so favorable: mortgages cannot be as readily liquidated. And since the security is comparatively non-negotiable, usually the bonds so secured are also. The market then for First Mortgage Real Estate Bonds is not so good as that for Debentures, and not much better than that for first mortgages themselves. It is, of course, principally on the score of negotiability that national banks are not permitted to buy Real Estate Bonds.

1146. Duration. Much the same practice obtains for the redemption and repayment of the second class as of the first. The bonds run from 10 to 15 years and are usually callable at the expiration of about half the period. There is, therefore, no opportunity for great appreciation.

1147. Leasehold Mortgage Bonds. There is a kind of bond, a variation upon the usual First Mortgage Real Estate Bond, that is worthy of study, not because of its present prominence, but because of its probable future vogue: the Leasehold Mortgage Bond.

The leasehold principle applied to real estate, common enough in England and on the continent, is only just obtaining recognition in this country. As central business property in great cities grows more and more valuable it can be developed to best advantage with high buildings in large parcels. If the person or estate that owns the land is unable or unwilling to make the costly improvements required to bring the property to its highest efficiency, then it devolves upon an enterprising tenant, or upon a lessee who purposes to make his gains by sub-leases or rentals. Since the building or buildings to be constructed at the expense of the lessee will involve heavy outlay, he will probably require the option of renewals at the expiration of the lease, and a return to him at that time, of a fixed or arbitrated sum for the building he has erected.

1148. Security. Because of the scale on which realty operations are now conducted in the larger cities, the lessee is probably a corporation, and as such seeks to extend its operations to the scope of its capital. It cannot mortgage the land, which it does not own, but it can mortgage its interest in the leaseholds. A mortgage thus made and duly recorded may be as secure as if upon the land itself, for it is a lien upon the only thing that makes the land valuable, that is, its earnings; and, of course, any mortgage upon the land, or fee, recorded subsequently to the leasehold mortgage, is second or otherwise junior to it. The leasehold as security, or part security for railroad bonds (e.g. the New York Central 3½s of 1997) is very common.

1149. Although the conditions under which leaseholds arise argue an intelligent and satisfactory real estate situation, abstractly the discussion concerning the relative security of leasehold mortgages and of land lien mortgages resolves itself into which would suffer least if reduced to foreclosure. Academically, it seems as if the market for real property itself at present would be broader in this country than that for leaseholds, because real property, as a kind of wealth, is better known; but in either case the probabilities are that the equity at stake would be bought in by the interested bondholders. Practically, however, the leasehold bondholders are favorably secured in this respect, as compared with bondholders in general, since the trustee or a bondholders' protective committee could conduct such a simple business as renting property controlled by the company; whereas, if the foreclosed mortgage was secured by such a business as transportation or public lighting, technical considerations would probably make it inadvisable for the bondholders or their representatives to enter into the business for their own account.

1150. The purchaser of Leasehold Mortgage Bonds will do well to satisfy himself as to the following particulars:

1. There should be no prior liens, or very immaterial, upon the land or leaseholds.
2. The ground rents should average several years longer than the longest bonds.
3. The sub-leases and rentals should be of fair average duration and should not all expire at one time.
4. The value of the ground rent or leasehold interests should be greatly in excess of the authorized bond issue; and the value should not be taken at the company's estimate unless that con-

forms with the estimate of a disinterested audit company, or to the valuation made by insurance companies as the basis of their underwriting of the leasehold interests.

5. The net earnings of the lessee corporation should be several times all interest charges and sinking fund requirements.

6. The situation and nature of the properties and the character of the tenants should be such as to insure a low percentage of vacancies from any cause whatsoever.

7. The leaseholds and properties should be adequately insured to the trustee for the benefit of the bondholders, against fire and other usual insurable risks; and the fee titles should be guaranteed.

8. An adequate sinking fund for the redemption of the bonds should be accumulated; or much better, the bonds should be redeemed serially.

1151. Eligibility for National Banks. Although Real Estate Bonds, in general, are not investments legal for national banks, it happens, curiously enough, that Leasehold Mortgage Bonds escape the classification and are bought by national banks. According to the Treasury Department "Real Estate Mortgage Bonds, or bonds resting solely upon the security of real estate, are not considered proper investments or securities for a national bank. If the bonds . . . however . . . are not secured by real estate, but simply by the lease thereof, they would not come under the classification of Real Estate Bonds." Eligibility of leasehold mortgage bonds should in time give them recognition favorable to their marketability. But, at present, they are not likely to have any advantage in this respect over other Real Estate Mortgage Bonds, unless they are handled by a bond house that protects its clients. But since the Leasehold variety requires more careful study than the simple land lien bond, when carefully bought it has the advantage of greater income return with an equal degree of security.

CHAPTER XXX

TIMBER BONDS

1152. The Lumber Business. Mr. Gifford Pinchot estimates that, at the present rate of consumption, all the available timber in the United States would be exhausted within 20 years. How rapidly the cut has increased will be seen from the following table, which is taken from a circular of the Forest Service of the Department of Agriculture:

Lumber Cut During

1880	18,125,432,000 feet
1890	23,842,230,000 "
1900	35,067,595,000 "
1907	40,256,154,000 "
1908	33,224,369,000 " ¹
Total Cut, 1880-1907 (estimated)...	801,329,932,000 "

1153. The Department calls attention to the fact that the increase in population from 1880 to 1900 was 52 per cent., but the increase in lumber cut was 94 per cent.; also that consumption was in excess of three times the new growth.

1154. Every one knows what has been the result upon lumber prices in this country of ours which has been, and is still, so grossly wasteful of its resources, and until the last decade or two, utterly ignorant of scientific forestry. The effect upon the character of the lumber business itself has been no less marked.

1155. One of the chief benefits of the present aggregation of capital in constantly enlarging units, is in furnishing the sinews for a single control of a product from its primitive state, through the processes of conversion into consumptive form, and transportation to the wholesale or retail markets. In the long run, by reason of economies in operation, and standardization in service, either the

¹ 1908 was a bad year in the lumber industry, due of course to building conditions following the panic.

product will be improved, or the price to the consumer will be less than it would be otherwise, however greater than in past years when consumption had not yet taxed the power of production.

1156. The evolution in American business methods has been operative in the lumber industry as well as in the livestock, steel, milk, and oil industries. Whereas formerly a half-dozen companies were required to convert a tree into sash, furniture, or paper, now the lands, stumpage, logging equipment, mills, and sometimes even the selling organization, are in unit ownership and direction.

1157. There is, however, a reason for conducting the lumber business on a scale suggesting great commercial consolidations, which has no reference to monopolistic tendencies in general. It has to do with that conservation of which we hear so much nowadays. If the supply of wood should soon become exhausted, immense sums would be lost which have been necessary to the erection and equipment of modern economical milling plants with their railroad and river approaches and outlets. A way to prevent this loss is to buy tracts or "limits" of such extent and value as to permit an annual depreciation charge from earnings sufficient to wipe out the cost of the land or lease, and of the plant. But this is generally uneconomical as compared with the policy of replacing stripped lands with new growth.

1158. The Origin of Timber Land Bonds. Reforestation is accepted in France and Germany and other European nations as a matter of course. One can buy in New York bentwood furniture made from third, fourth, or fifth growth timber from Austrian forests. Our few forestry schools, still in the first generation, have taught reforestation as their first lesson; and it could well enough be applied particularly by the wood pulp and paper companies, which are accumulating wooded tracts on such a scale as to admit of cutting sections in rotation, so that on the exhaustion of virgin timber, section after section, in turn, would be in proper age for second cutting. We have not quite reached this stage in the lumber business yet.

1159. What is a comparatively easy problem for the paper companies becomes more difficult for concerns which convert the better grades of stock, especially hardwood. But the principal is the same, and nothing is needed but the requisite degrees of patience, knowledge, and capital. The longer the time necessary to age the particular woods grown, and the more acute the demand for these woods, the greater the funds necessary to the undertaking. So

it has come about that lumber companies have been obliged to appeal for investment capital, as well as speculative, and they have turned to the bond houses.

1160. Fifteen or twenty years ago a call for investment money from the lumber interests would have met with scant response. The demand from other quarters was too great. Furthermore, investment principles had first to be worked out, by thought and experience, for the more necessary transportation problems, railroad and street railway, and interurban, and for the problems of public service in lighting, heating, and power, and for problems of communication, the telegraph and the telephone. Then, again, a class of wealthy investors such as we now have in the Middle West, had to come into being, and be made acquainted with the application of investment principles to industrial enterprises of the very sort in which they had won competence by business speculation. Upon the fruition of these things the field was ready for timber bonds.

1161. There are, then, at least three objects for the entrance of lumber companies into the field of bond finance: to accumulate timber lands against the impending wood famine, to insure future supplies for the expensive mills and plants, and last, but unfortunately least, to reforest in the interest of a permanent wood supply.

1162. The Requirements of Mortgage and Deed of Trust. In the evolutonal stages of any business development, no funds devoted to it can be considered safe unless they are secured by a primary lien on the larger part of a company's entire assets. The value of the material property pledged should be heavily in excess of the amount of the obligation, and provision should be made for the retirement of the debt in a much more rapid ratio than the depletion of the resources and the depreciation of the plant.

1163. In addition to the lien there is sometimes guaranty by indorsement, individual, or several, or joint and several. The indorsers would naturally be men in the lumber business with commercial rating. The added security of indorsement is particularly acceptable to the class of business men who buy timber land bonds. A triple indorsement might give the bond in their eyes the advantage of being the three name paper familiar to them.

1164. The Timber Lands. Timber land bonds should be first mortgage obligations secured on the fee of most, if not all, the lands owned. Titles should be searched by competent counsel, acting

for the banking house. Titles are sometimes questionable in the comparatively unsettled country that now furnishes us with most of our timber. Because that country is comparatively unsettled and less accessible, the title is usually thought of as valuable only in relation to lumber. But there are timber land bonds outstanding, notably some secured by pledge of New England land, that will probably prove far from worthless without the wood, by the time the loans mature.

1165. The market value of standing timber depends as much on the location of the lands with reference to the market, and on the means of transportation to it, as on the lumber itself. The lands may possibly be tapped or traversed by drivable streams. Then the bondholders' money may go into the purchase of more raw material, and not be sunk into lumber railways, the earnings and usefulness of which are likely to diminish with every year of service. If these streams can also furnish power for saw, planing, pulp, or paper mills, so much the better.

1166. If a large part of the assets is ownership merely of stumpage, and not of the land, the bearing of this fact on the future of the company may be important, as well as the terms on which the usufruct reverts to the land owners.

1167. Other merchantable perquisites sometimes pertain to lumber companies, and are of value under the mortgage. In illustration, pine and other coniferous forests have valuable turpentine rights.

1168. Because one of the main efforts of lumber companies at present is to increase their ownership in the "raw material," it is unusual for the mortgage to cover, not only present property, but all hereafter acquired. Such a provision in the deed would, of course, be a source of strength to it.

1169. The Plant. The lumber manufacturing plants may or may not be a large part of the company's pledged assets. The largest plant in the world, recently completed at a cost of over \$3,000,000, is part of the security for a bond issue of \$3,000,000 authorized. The timber lands under the lien are valued at about \$7,500,000. The total value of all the property covered is thus about three and one-half times the amount of the bond issue. If the estimates are fair the various ratios are adapted to the safety of the bonds.

1170. It is evident that the mills, the kilns, the railroad, and logging equipment, and all the other property and machinery necessary for converting logs into lumber, or lumber into finished

product, should bear as low as possible a ratio of cost to the value of the raw material, for the plant will depreciate. But just as surely the wood will appreciate from the present level of prices, except for temporary setbacks due to artificial causes such as severe business depression, or the breakdown of the tariff. In the East, the opening of the Panama Canal may cause an adjustment of the prices of Eastern and Western woods, due to lower freight rates from the Pacific coast.

1171. But in these days when most uncut virgin timber is so far removed from centers of population, it is generally the building of the plant which gives marketability to the wood. Presumably the lands were acquired at a low figure for the very reason that there were then no facilities near for working timber. Probably it is still possible to buy timber in the State of Washington for less than \$1.00 a thousand that will be worth from four to eight times as much when accessible by rail.

1172. **The Timber.** Occasionally a large part of the timber assets is already in yard or mill; but generally we look to the standing timber as the principal pledge under the lien. The value of it must be appraised in accordance with the quantity, kinds, quality, and (as just stated), accessibility. Since this is a self-evident statement, little elaboration is necessary.

1173. The method of appraisal, in its essential interest to the bondholder, is easy to understand. No guesswork is necessary as in the case of unmined coal or metals. When the tracts were bought the lumber company sent "cruisers" to ascertain, with more or less approximation, the number of thousands of feet, or cords, in the tracts. The banking house will not be satisfied with this. It will wish to learn from disinterested sources with all the exactness possible. It will, therefore, have timber estimators and compassmen sent out to reappraise, and report general conditions, viz.: as to the greenness and general thriftiness of the wood, as to whether the kinds are well-bunched or promiscuous, whether or not the plots are grouped in convenient logging distances, whether the timber has been turpentine, etc., etc.

1174. The quantity of timber is not merely a matter of acreage, but a matter of growth and density. Nor is it a matter of board, but of log feet. According to the purposes to which it will be put, the stumpage included in the estimate may be, perhaps, of 8, 10, or 12-inch logs, and up.

1175. A clear definition of what character of timber is to be

estimated and entire confidence in the good faith of the estimators, are essential to satisfactory returns. A gang of cruisers that recently covered a timber property known to the writer, brought in an estimate five times as great as that of a second gang which worked over the property independently, and at about the same time.

1176. Timber Values. The great and growing strength of industrial companies lies in the possession of material wealth for which the demand is bound to increase in greater ratio than the supply. Although, in a sense, the future supply of wood is not fixed as that of coal or metals, yet wood is of such slow growth as to be justly estimated on the basis of a constantly increasing demand. The average value per thousand feet at the mill for all lumber produced in this country was \$11.13 in 1900, \$12.76 in 1904, \$16.54 in 1906, \$16.56 in 1907, and \$15.37 in 1908.

1177. There is probably no material, not even gold itself, which has a future value in exchange more assured than wood. The truth of this, in so far, at least, as this country is concerned, is to be found in the accompanying tables which are from a recent bulletin of the Bureau of Labor. Lumber values have had no material setbacks in the past 20 years at least; and the tendency has been constantly upward. Lumber, therefore, looked upon as mere material, is most excellent security for bonds.

1178.

PRICES OF LUMBER AND

YEAR.	Maple: hard.		Oak: white, plain.		Oak: white, quartered.		Hemlock.	
	Average price per M feet.	Relative price.	Average price per M feet.	Relative price.	Average price per M feet.	Relative price.	Average price per M feet.	Relative price.
Average, 1890-1899.....	\$25.5042	100.0	\$27.4292	100.0	\$23.0771	100.0	\$11.9225	100.0
1890.....	25.5000	100.0	27.8750	101.3	21.4522	92.9	12.8222	107.5
1891.....	25.5000	100.0	28.0000	101.5	23.5522	99.8	12.4222	104.1
1892.....	25.5000	100.0	28.4522	103.7	23.0000	98.7	12.2217	102.5
1893.....	25.5000	100.0	28.7500	103.5	24.0000	98.7	12.0000	100.3
1894.....	25.5000	100.0	27.3500	99.5	21.1250	95.3	11.7022	97.9
1895.....	25.5000	100.0	28.2500	98.8	23.2500	99.2	11.1422	92.3
1896.....	25.5000	100.0	28.2500	98.8	24.5000	101.5	11.1677	92.3
1897.....	25.5000	100.0	28.2500	98.8	23.2522	100.3	11.0900	92.9
1898.....	25.5000	100.0	28.2500	98.8	24.5000	97.8	11.7222	92.3
1899.....	25.5417	100.1	28.9522	104.1	20.5222	112.7	12.2222	112.0
1900.....	27.5000	105.8	40.8222	109.1	24.4522	120.1	16.5000	127.9
1901.....	26.7022	100.8	28.7702	98.2	22.1677	110.2	15.0000	125.4
1902.....	25.5222	107.8	40.6750	109.2	23.0222	117.5	15.5222	129.4
1903.....	21.6222	119.5	44.8222	119.8	24.7217	120.2	16.7217	140.4
1904.....	21.0000	117.0	46.5000	124.2	20.7500	120.4	17.0000	142.1
1905.....	20.5000	115.1	47.2222	123.5	20.2500	120.5	17.2222	144.4
1906.....	21.0000	117.0	50.4167	124.7	20.1677	120.5	21.2222	152.9
1907.....	22.2500	121.7	55.2022	127.5	20.0000	120.0	22.2222	152.9
1908.....	21.2222	119.3	49.2217	121.7	20.1677	120.3	20.2222	144.5

1179. The Fire Hazard. Unfortunately, however, there is one drawback to the ideality of timber as security, and that is the fire hazard. How real the risk in many sections, may be judged from the fact that the Lloyds of London are the only association known to the writer which will insure standing timber. They charge \$6 a hundred and require a detailed description of the property for judgment of its worth as a risk.

1180. Admitting the danger, the case is not so bad as it looks. In the first place this danger of fire is being rapidly lessened by the organized efforts of private and government patrols. Secondly, perpetual dampness or a rainy season militates against fires during the whole or a part of the year, in some sections of the country. This is true in Canada, in certain parts of the Northwest, and in the South. In the circulars of bond houses offering timber bonds it has been asserted that standing timber located in the Southern States has never been destroyed by fire. This statement needs qualification. Nevertheless, it is true that any serious damage by fire in the Southern pine belt is very unlikely, if not impossible, because of the absence of underbrush and low-growing branches. Thirdly, even when fire kills the green standing stock, that stock is not necessarily lost. Most of it may be saved by cutting within a season or two.

1181. The trustee will at least see that every insurable risk, such as the mills and equipment, is protected by insurance.

DERIVED PRODUCTS

Pine: yellow.		Spruce.		Tar.		Turpentine: spirits of.		YEAR.
Average price per M feet.	Rela- tive price.	Average price per M feet.	Rela- tive price.	Average price per barrel.	Rela- tive price.	Average price per gallon.	Rela- tive price.	
\$18.4646	100.0	\$14.3489	100.0	\$1.2048	100.0	\$0.3343	100.0	Average, 1890-1899
20.7700	112.4	16.2917	113.5	1.4750	122.4	.4080	122.0	1890
19.9683	108.1	14.2183	99.1	1.5833	131.4	.3795	113.5	1891
18.5000	100.2	14.8542	103.5	1.3000	107.9	.3227	96.5	1892
18.5000	100.3	13.7708	96.0	1.0458	86.8	.3002	89.8	1893
18.5000	100.2	12.7083	88.6	1.0917	90.6	.2932	87.7	1894
16.9107	91.6	14.2500	99.3	1.1417	94.8	.2923	87.4	1895
16.4107	88.9	14.2500	99.3	1.0125	84.0	.2743	82.1	1896
16.4375	90.0	14.0000	97.6	1.0542	87.5	.2924	87.5	1897
16.0250	100.9	13.7500	95.8	1.0979	91.1	.3221	96.4	1898
30.0417	108.5	15.3058	107.3	1.2458	103.4	.4581	137.0	1899
30.7083	112.2	17.3750	121.1	1.3625	113.1	.4771	142.7	1900
19.6607	106.5	18.0000	126.4	1.3817	106.4	.3729	111.5	1901
21.0000	113.7	19.2500	134.2	1.3250	110.0	.4740	141.8	1902
21.0000	113.7	19.1875	133.7	1.6792	139.4	.5715	171.0	1903
21.4167	116.0	20.5000	143.9	1.6792	139.4	.5757	172.2	1904
34.9167	134.9	21.4167	149.3	1.7583	145.9	.6276	187.7	1905
39.3333	158.9	25.5417	178.0	1.9583	162.5	.6649	198.9	1906
30.5500	165.2	24.0000	167.3	2.3292	193.3	.6544	199.8	1907
30.5500	165.2	30.7917	144.9	1.6000	132.8	.4533	135.6	1908

1182. The principle of the distribution of risk can be applied to timber tracts, and sometimes is. There are vast timber limits in the eastern provinces of Canada, under one control, that are separated,—dove-tailed as it were,—by strips in other ownership; but there are patent transportation disadvantages under this arrangement, unless the several properties are united by a drivable stream, that the logs may advantageously be sent to mill or market. Large tracts surrounded by alien property are generally operated separately.

1183. **Amortisation.** In common with concerns operating in any kind of fields of deposit, such as coal and metal mines, so that the income is derived at the expense of the assets, lumber companies should arrange the maturities of their loans in regular series, presumably annual. The mortgage should contain carefully detailed provision by which the retirement of the loan will be at faster rate than the depletion of the assets. There can be no fixed tax for the sinking fund which shall be standard. A common and often safe amount is \$3 per thousand feet, log scale, of standing timber; but the rate will be determined by the value of the timber. It may be stipulated that periodic sworn statements of the amount cut be made by the superintendent of the cutting, and verified by the principal officers of the company. It is best to have a minimum annual instalment to meet the requirements of redemption, and to increase the equity annually.

1184. This redemption fund will apply to the payment of the principal only, and will be on the basis of about double the amount for which the timber is mortgaged, and will operate to retire all of the bonds before consuming over one-half the timber.

1185. The sequestration, for the sinking fund, of a specified sum per annum is not as satisfactory as the scale method with a minimum attached, for if a fire should sweep through and kill a large part of the timber, it would be necessary to cut down the dead stumpage within a year or two, and the sinking fund should be protected accordingly.

1186. If, because of the amount cut, the deposits under the redemption fund should exceed the amount of bonds maturing in any year, the trustee should be obliged to purchase, or call for redemption at some small premium, such as 3 per cent. and interest, the unmatured bonds in amount sufficient to exhaust the surplus.

1187. Sometimes a timber land bond is the issue of a company doing business in a specialty such as cooperage. The sinking fund

then may be gauged in terms of the product:—for instance, in cooperage, of perhaps \$5 a cord of bolts for staves and headings. In such case the circular should translate into terms of feet, that the bond buyer may estimate the equity and the rate of redemption. It should be provided in the mortgage that a large part of, if not all, the sums obtained by sale of timber to other companies should be applied to the redemption of bonds. Bond buyers are more likely to meet a cord charge on pulp wood, for paper company bonds are more numerous.

1188. Management, History, and Earnings. The personnel and financial standing of owners and managers are generally ascertainable through the commercial agencies. The lumber business in this country has credit agencies of its own. A company's stock is seldom widely distributed, and the reported standing of its principal owners, and the credit of the company itself, may be verified by application to local banks. Additional light may be thrown on these matters by testimony from banks and notebrokers as to the salability of the company's unsecured paper.

1189. The experience and success of the company's members in other lumber enterprises will have necessary bearing; and their affiliation, through stock-ownership or otherwise, with companies that are an outlet for their product.

1190. The paid-up capital, the surplus, and if the company is established, the net earnings for the past five years, the relation of net earnings to gross, etc.—all will be subjects for examination.

1191. Marketability and Income. Timber land bonds usually bear 6 per cent. interest, and are sold at par or thereabout. In spite of its excellences (providing danger from serious fire is remote), this type of loan is too new, and its acceptance as investment too limited, for the purchaser to expect a ready market. If the issue has been outstanding for some time the trustee may be interested in an offer for the sinking fund. But the buyer's main recourse is the bond house of which he bought. Hence its attitude in regard to repurchasing its specialties is of utmost interest to him.

CHAPTER XXXI

RECLAMATION ISSUES: IRRIGATION DISTRICT BONDS

1192. One does not often meet with the expression Reclamation Issues in the nomenclature of finance. Yet there is a type of obligations, with sharply defined common characteristics, that may well bear this title, if only for convenience of designation in the discussion of fiscal theories. In its three subdivisions, Irrigation, Drainage, and Levee Bonds, it represents the financial means by which formerly unproductive territory in the United States, equal in extent to several per cent. of the total area, is working out its own salvation. This broad use of the word *reclamation* is thoroughly justified by its meaning and by its employment in Congressional acts. In Western law it is used more particularly of the work of drainage and of levee building.

1193. Nature has dealt more kindly with us than we knew a generation ago. A comparatively small proportion of our immense lowland country is irredeemable desert. Latterly we have come to realize that the alchemy of modern engineering can easily convert wastes of sage brush or marsh grass into ultimate gold. Nothing is needed but skill to lead down waters to the plains, or may be to drive them back from the soil; for all reclamation of land is concerned with water, which gives life to vegetation here and takes it away there. Or rather skill is not needed,—we have that.—but the sense of community of interest, which under Government leadership and help has done so much already for lands in Western states.

1194. Reclamation, then, is of two general kinds: irrigation and drainage. The work of irrigation is more spectacular and on larger scale; indeed it is the more important. Up to this time it has received from the Government more attention, both departmental and legislative. But the day is near at hand when drainage problems, especially in the East where they have been neglected, will be given their due consideration and will be solved financially, as we shall see, along lines laid out in irrigation development. It seems proper, therefore, to group these kindred securities.

IRRIGATION BONDS

1195. One of the several classes of securities that have not as yet attained a general recognition in the East is the Irrigation Bond. Although irrigation itself, successful and colossal, is as old as Egypt and Babylon, and had made green the Aztec soil of America before the coming of Europeans, and is now destined to nourish the waste places of more than a dozen states and territories, the bonds of its financing, even under present-day conditions, are looked at askance by Eastern investors, who are prone to associate them with the old Western farm mortgages to which they bear little likeness, except that they are Western and yield a high return, and that there has been sufficient miscarriage and undoing of irrigation projects to warrant a critical attitude toward them.

1196. Early Weaknesses. It will be remembered that equipment issues arose out of a need, among the weaker railroads, for rolling stock, which they were too poor to purchase out of surplus revenues, or by means of the usual funded loans. When, in the course of years, the expediency of equipment-bond financing was demonstrated, and laws were enacted in most states to protect the contracts that were the basis of the security, the custom of purchasing equipment by means of special equipment issues became quite general; and up to nearly the present time, the tendency to strengthen the security behind equipment bonds, especially by writing better and more uniform trust deeds, has been continuous. Just as, and at about the same time that, ten-year serial equipment bonds came to be issued, irrigation began to be the subject of serious study, and an outlet for speculative activity in the arid West; and the growth of the West, in population, in material well-being, in engineering skill, in agricultural science, and in law,—especially in irrigation law,—has steadily raised the status of irrigation, broadened its activities, and greatly strengthened the security for ten-year serial irrigation bonds; although it is by no means to be implied from this, that, as a class, irrigation bonds are on anything like the same plane of security as equipment bonds.

1197. There were three main causes of hazard in the irrigation enterprises of the early days: the immaturity of American irrigation engineering, the instability of Western business conditions, and the confusion of law as affecting land and water rights. The first two of these we may dismiss as things largely of the past, and give attention to the third.

1198. **Land and Water Rights and the Law.** Irrigation, of course, as stated, has to do with the union of water and land in the interest of fertility. More difficulties of all sorts have arisen from questions concerning the supply and diversion of water than from problems concerning the allotment and ownership of land. These difficulties, now and in the past, have been accentuated on the Pacific coast. Each of the three immense states on the Pacific slope:—California, Oregon, and Washington,—has “both a wet and a dry end”; i.e. each has a part of its territory so situated as to be rain-watered, and independent of engineering for fertility; and a part so situated that it has no rainy season, and is productive only when artificially watered. As a result, there has been a constant tendency, from the very beginning, toward a difference in judicial opinion as to the rights of the public, and of the abutters, to streams of water.

1199. Naturally, judges of courts having jurisdiction in arid territory, have construed state law most favorably to the interests of settlers; those in the rainy belt have taken the more usual common law stand in regard to riparian rights, and (for illustration) have, to some extent, protected the proprietors of riparian land from up-stream detention, diversion, and pollution of water. This conflict of the doctrine of appropriation with the older, world-wide doctrine of riparian rights, has unsettled the status of irrigation bonds in California, Oregon, and Washington. Under the influence of permanent geographical conditions, state law here still permits an undesirable latitude of method in the redemption of unproductive land. In the three states mentioned, and in those others in which the common-law doctrine of riparian rights obtained a foothold in the early days of their settlement, the doctrine of appropriation now prevails only where the common law principle cannot obtain, namely on waters belonging to the state or to the United States. This is the law established in California by the well-known case of *Lux v. Haggin* (69 Cal. 255, 10 Pac. 674).

1200. There has been no such conflict in the more generally arid states. The law has been at one with itself, and consequently favorable to general and equitable reclamation in Idaho, Wyoming, Colorado, and Nebraska. At its best it recognizes that water, when appropriated, “rises to the dignity of a distinct usufructuary estate or right of property.” In some of these states there is not a vestige of riparian rights.

1201. **Federal Irrigation.** Fortunately, the redemption of arid

land has not been left, all this time, solely to the initiative and discretion of the commonwealths. Moved, no doubt, by the failure of irrigation enterprises in California and elsewhere, Congress in the past 20 years has freely discussed irrigation and has enacted several laws in the interest of the reclamation of desert places in the United States. It is only natural that the line of federal action should be in evolution from past governmental policies concerning the settlement and development of public lands, since it is public lands that most need irrigation. These policies are summed up in the Homestead Law of 1872, and the Desert Land Act of 1877, amended in 1891; but the earlier law had, however, no direct connection with irrigation.

1202. *The Homestead Law* gave title of public land in the extent of 160 acres to any citizen establishing and maintaining residence upon it and cultivating it for a period of five years. By amendment the lustrum was commuted to 14 months, on payment of \$1.25 per acre.

1203. *The Desert Land Act* differed from the Homestead Law in these respects:—it concerned the irrigation and settlement of desert land; and therefore it granted larger tracts to each settler, namely, 640 acres, and title was passed on the annual expenditure of \$1.00 per acre for three consecutive years. By the amendment of 1891, 320 acres was the maximum apportionment, and the other previous requirements were made more stringent.

1204. *The National Irrigation Act*. Upon these as a basis, and also upon the Carey Act, which will be taken up separately, Congress passed, in 1902, the *National Irrigation Act*, under which the Government now conducts its operations.¹ A survey of this law will be helpful to a right understanding of the principles by which waste land is redeemed; but no bond issues are put forth as the result of it. It declares that the work of reclamation must be paid for by the sale of the rights on the specific lands benefited; and that when so paid for the fund shall be returned to the Government, and that the purchasers of the water rights shall become the owners of the irrigation works, i.e. dams, flumes, canals, gates, ditches, etc., and all rights appertaining. The water rights may be paid for in 10 yearly instalments. It declares that all moneys received from the sale of public lands in certain (16) states and territories, shall be set aside as a special fund in the Treasury, known as the rec-

¹ For the complete text see 32 U. S. Statutes 388, ch. 1093.

lamation fund, to be used in the examination of, and survey for, and the construction and maintenance of irrigation works for the reclamation of arid and semi-arid lands in the states and territories from which the funds came. It also empowers the Secretary of the Interior to withdraw from public entry the lands required.

1205. When the Secretary determines that any irrigation project submitted to him is practicable, he may cause to be let contracts for the construction, and shall limit the area of entry to what may be reasonably required for the support of a family, also the charges that shall be made per acre (with a view of returning to the reclamation fund the cost of construction), and also the number of annual instalments, not exceeding 10, in which such charges shall be paid.

1206. The entryman upon the irrigated lands shall reclaim at least one-half of the total irrigable area for agricultural purposes, and before receiving patent for the lands covered by his entry, shall pay the Government the charges apportioned against his tract. No water right shall be sold, for land in private ownership, to a tract exceeding 160 acres, and no such sale shall be made to any landowner unless he be an actual bona fide resident on such land, or occupant thereof residing in the neighborhood.

1207. When the payments required by this Act are made for the major portion of the lands irrigated, then their management and operation shall pass to the owners of the land irrigated thereby, to be maintained at their expense under such form of organization and rules and regulations as may be acceptable to the Secretary of the Interior; provided that the title to and management of reservoirs and the works necessary to their protection and operation shall remain in the Government until otherwise provided by Congress.

1208. Present-Day Irrigation Under State Law. By federal irrigation is meant the redemption of public lands of the United States, under the guidance and restriction of federal law as embodied in the National Irrigation Act, which we have just considered. On fulfilment of the conditions, title to the reclaimed land is passed from the Government to the settler, who, of course, is acting under state law as well.

In the present topic, "Irrigation under State Law," we come to those reclamation operations, in some of which the National Government does not appear at all; and in others, it appears at least

at one remove from contact with the settler. Title to the land to be reclaimed, until transfer, is in individuals or private corporations, or else in the state; but not in the National Government. The operations are usually financed by the sale of bonds.

1209. It is these projects, therefore, that interest us most; and in order to get a correct idea of the bonds they produce, it will be well to classify them. They may be "Irrigation District" projects, "Carey Act" projects, or "Private Company" projects;—each having its distinctive advantages and drawbacks as security for capital.

IRRIGATION DISTRICT BONDS

1210. **Irrigation District Bonds.** In the chapter entitled *The Bonds of Tax Districts* it was explained that many municipal corporations were organized with hardly a thought for general administrative or governmental functions, but for the purpose of levying special taxes to provide funds for objects of pecuniary value to the lands thus taxed; and that since these lands were not coincident with any more strictly governmental municipal corporations, such as town or county, the bonds of these districts had come to be called "Taxing District Bonds," or for brevity, "District Bonds." Irrigation District Bonds were there cited in illustration. To these issues, the principles that govern district bonds in general are applicable; and although irrigation districts may not always be looked upon as municipal corporations, the Bonds are legitimately classified under *Municipals*, and are quite distinct, as a form of security, from *Carey Act* or *Private Project* issues.

1211. The question immediately arises, since the validity of municipal issues is so often open to question, what bearing has the doubtful standing of the irrigation district, as a municipal corporation proper, upon the validity of irrigation district bonds. Such a district is at least a public corporation, for its officials, administration, and functions are all public; and, "being a public corporation, the validity of its organization cannot be collaterally attacked, as in a suit to enjoin the sale of lands for assessments, by showing that the board of supervisors acted without their jurisdiction in effecting the organization of the district. So, also, the irrigation district cannot plead the illegality of its own organization as a defense to an action on bonds issued by it;"¹ but on the other

¹Long on *The Law of Irrigation Bonds*.

hand it may seek confirmation of the legality of its proceedings, by submitting itself, either on petition of the board of supervisors of the district, or of an assessment payer, to the superior court of the county in which its acreage chiefly lies.

1212. There is considerable difference of attitude in the arid and semi-arid states toward the three modes of irrigation. California, Idaho, Kansas, Nebraska, Nevada, and Washington have all had considerable experience in municipal irrigation, and a more or less common body of municipal irrigation district laws. Colorado, also, is given to the prosecution of her works along strictly municipal lines. Bonds there are issued by permission of the General Assembly, and authorized by the qualified electors of the district benefited, and their legality is passed on by the district court. In many respects they are of the nature of school district loans. County commissioners fix the rate of tax levy for the district in excess of requirements for interest and maintenance charges. The County Treasurer is *ex-officio* treasurer of the irrigation district and levies taxes in the same manner and at the same time as the regular taxes on realty and personalty for county purposes; but there is this to the advantage of municipal irrigation issues, that they, unlike most school district issues, are usually obligations on the district prior to any subsequently imposed.

1213. One is not to infer from this, however, that the political origin of municipal irrigation issues gives a signal advantage over the issues of the Carey Act or Private Projects. Irrigation districts, in the nature of the case, are formed more strictly for industrial, or rather, for agricultural purposes, than are most districts. School and water districts may be part of, or include great cities; they may have corporate assets of great value, apart from any consideration of the assessable values of the property in the district; and their municipal plants may sometimes be productive of revenues even in excess of the interest and sinking-fund charges on their funded debts. But irrigation districts are not formed except when the lands that compose them are in need of greater fertility; and it is not likely that lands will be included in the district, and be subjected to its comparatively high tax, unless they are greatly to benefit by it. Irrigation districts, therefore, are usually "rural districts" and subject, as respects security, to the limitations that usually attend "rural" political divisions, as contrasted with "municipal" or "city" divisions. They suffer by comparison, as to the personnel of the administration, the provi-

dence and continuity of their fiscal policies, and the general *esprit du corps*. They are, therefore, peculiarly susceptible to the temptation to repudiate their obligations.

1214. Irrigation districts are not only rural, rather than municipal, but they may be even arid at the time of their formation. In this event the security for the bonds would depend, as it does in Carey Act projects, almost entirely on the successful outcome of the irrigation enterprise. It is not to be expected that rightly conducted districts will suffer, in the future, through engineering miscalculation; but as rural divisions, formed for an industrial undertaking, they may be sensitive to the influence of general business conditions. This is the conclusion of an inquiry into the history of irrigation districts, from their origin in the passage of the Wright Act of 1887, in California.¹

¹ Since these paragraphs were written there have been a dozen defaults on irrigation issues that have come to notice, among them several municipal district issues, principally in Colorado.

CHAPTER XXXII

RECLAMATION ISSUES: PRIVATE PROJECT AND CAREY ACT BONDS

1215. Strictly speaking, all irrigation projects that are not furthered by municipal corporations, are "private projects;" but, "Carey Act projects" are so distinctly set apart from other private irrigation enterprises, in that their aim is to reclaim public land, and in that they are the result of governmental aid and direction, it is customary to exclude them from this division. Private irrigation projects, then, we shall define as those undertaken by individuals or private corporations to improve, by watering, under state law, lands in private ownership.

PRIVATE PROJECTS

1216. Factors Making for Security. The value of the bonds issued by private irrigation companies is usually determined by the following factors:

- 1st. The existence of an adequate and permanent water supply.
- 2nd. The title to the water supply in the company claiming it.
- 3rd. The character and value of the irrigated land.
- 4th. The title to the land.
- 5th. The character of the settler.

1217. The Water Supply. It might sometimes happen in private developments, for instance in the semi-humid valley section of Eastern Washington, that irrigation bonds would have some security in the land-mortgage, even should water for irrigation utterly fail, for one cause or another; and in private projects generally, the land values, potentially greater than in Carey projects, offer some degree of security as in simple real estate mortgages. But as a broad statement, it is fair to say that the security for irrigation bonds is almost as dependent on an adequate and permanent supply of water as is the security for the bonds of hydro-electric power companies.

1218. However, the sources of this supply for irrigation are more general than for power developments, since power itself is

not requisite, but merely water. Some large irrigation undertakings are upon plateaus, and pump their water from rivers flowing at a lower level; or even, in want of water courses, pump their water from artesian wells. Questions of minimum flow or supply, past or prospective, due to deforestation, drought, and mechanical obstruction and diversion,—all enter into the security offered by water supply.

1219. The Water Title and the Water Rights. Questions of mechanical obstruction and diversion lead immediately to the subject of water rights, already discussed. One source of Eastern misconception of irrigation issues lies in this unfamiliarity with the "usufructuary estate" of water as developed in the laws of the arid commonwealths. Title to water supply, in these states, means title to "reasonable use," i.e. the right of a proprietor to divert his due portion of water, which shall not be diminished by any subsequent grant, to an adjacent proprietor, or right to withdraw water from the same stream.

1220. It very occasionally happens that bonds are issued against a lien on the works and water rights alone. Unless the circumstances were unusual, these bonds are not to be commended. The better, ordinary irrigation bond represents a first mortgage on the land of the issuing company, to which land adequate water rights attach. Sometimes two companies are organized, one to build and own the water rights, and the other to own the land to be subdivided, watered, and sold to settlers. In this case the irrigation company (the company owning the works and water rights), issues to the land company certificates of water rights, legally describing the land which the water is to cover, and also guaranteeing the bonds, so that, in effect, the bonds are secured by a lien both on land and on water rights. This double security must always be looked for since the funded credits of irrigation enterprises represent in finance what the physical elements do in irrigation: a union of water and land, so that the water becomes appurtenant and inseparable.

1221. The Watered Land. Another source of Eastern misconception is due to ignorance of Western land qualities and land values. The arid tracts that await watering are not usually poor lands in want of enrichment, but rich lands in want of moisture. To great depths they are full of soluble salts, chemically stimulating, that have not been washed away by the rains of humid climes, and that, when wet, will draw down great deep roots of vegetation, and sus-

tain them with vitality through a long period of drought. In such soil crop-rotation and surface-fertilization will long be unnecessary.

1222. The values of lands like these, when irrigated, multiply by leaps and bounds beyond all precedent in other forms of stable realty. The Chief Engineer of the Government Reclamation Service says: "The open range of the arid region is capable of supporting one cow to every 20 or 30 acres; the same land when watered and put to alfalfa will feed 12 cows to every 20 acres, or in orchard, in favorable altitudes, will support a family of from three to five persons. An enormous enhancement in land values, therefore, attaches to the reclamation of these arid tracts. As an open range its value may be 50 cents per acre; while under irrigation the selling price may be from \$50 to \$1,000 per acre."

1223. The Land Title. It is in the matter of land values that bonds of the class described may have advantage over Carey Act bonds, in that the lands available for private irrigation must be those in which title has passed from the Government or the state, and is held by individuals or corporations. In the West, lands of any considerable area, that have the title in this condition, are almost universally in a well-established country, with established values, and in proximity to towns and transportation. Since the fee titles to these lands are fixed directly in the corporation, the lands are usually sold and resold, and settled upon and improved, from the time irrigation is started; and since the price of these lands is being determined by a free market, not only are the values of the lands established, but they are current also.

1224. The Scale of Private Projects. That private irrigation projects are usually much smaller than Carey Act projects operates somewhat against economies of construction; but in these projects the fact is not always to be deprecated, since the smaller the irrigable land the briefer the period that should be necessary for settlement, and the lighter the consequent charge against the works for interest and maintenance during the non-productive period. Because of their freedom from government supervision private projects require more careful scrutiny from investors. But if the supply of water, and the title thereto, and the quality of the land, are satisfactory, and if the lands are salable at the price the irrigation company ask, and if the early interest and maintenance charges are provided for, and the construction cost is not too greatly overbonded, and the character of the settlers is satisfactory,

private projects have conformed to the Carey Act standard, and are worthy of study for certain kinds of investment. But the foregoing are numerous and indispensable provisos.

CAREY ACT PROJECTS

1225. The legislatures of some states, like Wyoming and Idaho, especially encourage the reclamation of segregated lands under the provisions of the Carey Act. This comprehensive and beneficent bill, passed by Congress in its primitive form in 1894, was named from the Wyoming senator who introduced it, and in his own state first made use of it. It authorized the Secretary of the Interior, with the approval of the President, to contract and agree to patent to the states of Washington, Oregon, California, Nevada, Idaho, Montana, Wyoming, Colorado, North Dakota, South Dakota, and Utah, or any other state in which are desert lands, an amount of these lands not to exceed one million acres to each state, to aid them in the reclamation, settlement, cultivation, and sale, in small tracts to actual settlers of the land in question.

A supplementary act of 1896 further authorized the creation, by the state, of liens against the legal subdivisions of the land reclaimed "for the actual cost and necessary expenses of reclamation and reasonable interest thereon from the date of reclamation until disposed of to actual settlers; and when an ample supply of water is actually furnished in a substantial ditch or canal, or by artesian wells or reservoirs, to reclaim a particular tract or tracts of such lands, then patents shall issue to the state without regard to settlement or cultivation."

1226. Under the amended Carey Act the typical mode of procedure for irrigation projects is this:—A proposal, with maps, plans, estimates, etc., to withdraw certain lands from the public domain for the purpose of reclamation, is filed with the proper authorities. The proposal must obtain the recommendation of the State Engineer, the approval of the State Board of Land Commissioners, the consent of the Secretary of the Interior, and of the President. The lands are then withdrawn from the jurisdiction exercised over the public domain, and are subject to contract between the state and the construction company for irrigation purposes, according to the state law and the provisions of the Carey Act.

1227. Under the terms of this contract the state authorizes a prior lien on the segregated lands in favor of the company, and by

the provisions of the lien, the title to the mortgaged land is not released by the state to the purchaser until he has paid the company for the rights or shares in a sufficient amount of water to irrigate his land. Furthermore, title does not pass from the state until the settlement is an accomplished fact; but the settler is required to have his land under cultivation within a reasonably brief time after the introduction of water. At no time is the title vested in the construction company. Thus the security for the irrigation bonds issued against the company's prior lien is created by immediate irrigation, settlement, and cultivation, in small tracts, by home-makers, acting under an agreement which is effectual because its infringement estops ultimate transfer of title.

1228. Since both the financial and physical principles of Carey Act projects are similar to those of private projects, the elements of security for the bonds are the same, and therefore are discussed in the same order.

1229. The Water Supply. It is particularly in the sufficiency and permanency of the water supply that Carey Act bonds have a security nominally stronger than that for municipal or private irrigation bonds. It is much easier to obtain competent opinion on one's land than on one's water. But as respects engineering, a plan ought to merit confidence that obtains the careful examination and approval of a State Engineer (who is presumed to be disinterested), and of the State Land Board, and of the Secretary of the Interior, who has access through the Government Reclamation Service to independent information concerning the project, if he should desire it. It is well known among the irrigation fraternity that the State Engineers take their supervisory duties very seriously. The financing of the project is quite another matter; there are times when it is very hard to sell any sort of land, and the lands must be readily salable if success is to come. But irrigation engineering itself, having now reached maturity, is not a subject for distrust. If, then, in the investigation of water supply, and in the building of water works, competency can be assured at all, it is by the Carey method.

1230. The Water Title and the Water Rights. In Carey Act projects the water rights assume even greater importance than in municipal or private projects, because of the comparative worthlessness of arid public land without them. Furthermore, Carey Act construction companies have no land to sell or to give title to, since title to these lands is in the state. Therefore, the company

must seek its profits from the sale of water rights that are appurtenant to, and inseparable from the land titles. But even the maximum price of these water rights must be fixed by the state, through the State Engineer, after an examination of the work and an estimate of its cost. The wording of the Carey Act seems to allow the company no profit for building the works, but of course in those states in which the Carey Act has had its greatest success, the authorities have allowed the construction company a generous profit, by accepting very liberal estimates of the cost of the work. Yet even then, since the maximum charge is set by the state, it is difficult to see how the capitalization of water rights through the bonds can be on a very inflated basis. The prices of the rights are from \$25 to \$45 per acre. A comparison of these prices with the prices of arid land, before and after irrigation, will remove any skepticism on the score of bonded over-capitalization of water rights. The water rights are purchased by the settler usually at the rate of \$1250 of rights to \$1000 of first lien. The terms are a part cash down and the remainder in equal annual instalments, for which the settler gives his promissory note secured by the lien, which is virtually a purchase-money mortgage.

1231. The validity of water titles can hardly come into question in undertakings so closely identified with the state as these of the Carey Act.

1232. The Watered Land. Carey Act bonds are not only a lien on the water rights, but also on the land. The land-lien would be worth little did not the land face irrigation and cultivation. Until it is sold and settled (and by the terms it must be settled shortly after being sold), the project has the burden of carrying charges. But Carey Act projects offer land bargains, and are therefore very salable in spite of the fact that they are generally at considerable remove from centers of population. They are bargains because the land is almost always first class in quality, and because the state is donated the land by the Federal Government, and can therefore offer it to the settler at 50 cents per acre.

1233. The Land Title. The titles to Carey lands are always held by the state when the bonds are put on sale, having been obtained from the National Government at a certain stage of the development; and the title is passed to the settler at a future date, when he has paid the price of the water rights, and of the small sum asked for the land.

1234. Since the land titles come to the state directly from the Government, and are later passed by the state directly to the settler, they are impeccable. They could not be clearer or less disputable. From experience, there is good reason to believe that the greatest service rendered by the Carey Act to investors in irrigation bonds is the state validation of land and water titles that is implied when the Engineer grants a permit for construction.

1235. *The Scale of Carey Act Projects.* Carey Act lands are usually in very large tracts. Were it not for their merchantability *as land bargains*, this would be a serious objection, for it would mean heavy carrying charges during the construction period, and until the land with its water rights was sold. As it is, however, the scale on which these properties are planned is to their advantage, since it allows for most economical operation. And again, owing to the low cost of undeveloped Carey lands, the expense of selling water rights is usually very small, as compared with the expense of selling the lands of private systems. Moreover, the scale of the Carey projects permits broadcast advertising in which the railroads gladly assist for the upbuilding of the country. Thereby the selling cost per acre is very much reduced.

1236. *Summary.* In summary, irrigation bonds are almost always prior liens, and in Carey Act and private projects "first and only" liens, on waterworks and reclaimed land, or on land about to be reclaimed. Their priority as liens is a recognition of the commercial primacy of irrigation in the arid West.

1237. In municipal, or in Carey Act projects, the bonded indebtedness represents, or should represent, the approximate cost of construction, with reasonable interest and profits, and in any case, it is secured by property usually worth several times the amount of the issue, as soon as the lands, with their inseparable water rights, are possessed and cultivated by settlers. If Irrigation District Bonds, they have the same formal characteristics as other Municipal District Bonds, and they are legitimately called Municipals. If corporation bonds, issued in accordance with the Carey Act, they have met with Government sanction and with state supervision and approval. If Serial Irrigation Bonds, the equity, or margin of safety, grows from year to year, as in Serial Equipment Bonds; but unlike Equipment Bonds, the material security ordinarily does not depreciate, but rather enhances rapidly, through growth in land values. But, to repeat, it does not follow from the

foregoing that, as a whole, the security for Irrigation Bonds is comparable with that of Equipments.

1238. Disadvantages. As a channel of investment Irrigation Bonds have drawbacks as obvious as their excellences. The legal aspect of the disadvantages has been mentioned. Furthermore, it cannot be gainsaid that, after all, Irrigation Bonds, irrespective of kind, represent at the time they are issued the funding of loans that are to pay for future developments; and these developments, in common with all construction propositions, have elements of risk. No amount of legislative direction and restriction, of itself, will assure success to an irrigation proposition. The financial record of irrigation has been fairly clean; but some district private projects, and at least one Carey Act project, have fallen into difficulties. There are not wanting those who believe much trouble is yet to come because of overcapitalization and misguided enterprise. As distinguished from most municipal, railroad, and corporation bonds, the *immediate* security for irrigation issues is land value, rather than credit or earning power, and the value must be in the land. But the value of the land is dependent on an unfailing supply of water, on fertility of soil, a market for its products, and transportation to that market, and lastly, on the character and permanency of the settlement. To ascertain these facts at first hand and beyond peradventure is difficult. Reliance must be placed on the bond house that sells the security. Of all classes of bonds these most particularly should be bought only of bankers who are trustworthy, and conversant with the construction and financial problems of the securities they offer.

1239. The indifference of Eastern houses¹ to irrigation projects is due, in part, to their unfamiliarity with the field, and it may be, to an unwillingness to go to the heavy expense necessary for a proper investigation of any project that may be offered to them, since the successful disposition of the issue among their clientèle might be a matter of question. And since in Carey Act projects the corporate life of the irrigation company terminates when the works are handed over to the settlers, there is not the incentive of a stock bonus with prospect of increase in value, which the ordinary public utility enterprise offers to a banking house that will promote it. But apart from such considerations there remains that deep-rooted distrust of what the future may have in store, especially

¹ Only one Eastern house of standing regularly handles irrigation issues.

for the municipal and private undertakings, many of which have been bonded for much more than their cost.

1240. Market and Net Return. The principal market for Irrigation Bonds, therefore, is in the Middle West; and this fact coupled with the unwillingness of many houses, East and West, to handle them at all, deprives most of the issues of a ready market. But it is not surprising that they tempt investors who know something of the success of irrigation as an agricultural enterprise, for the bonds are usually sold to net from 6 to 6½ per cent. The State of Colorado thinks well enough of her own irrigation district bonds to permit them to be bought for the state school fund. They are also purchased there by national banks.

1241. Future. It is remarkable what has been accomplished in the last few years in reclaiming the arid lands of the United States. The Reclamation Service reports that plans thus far made and approved call for the irrigation of 3,171,000 acres at an outlay of \$97,000,000, as the result of which the lands benefited will have a minimum value of \$150,000,000. When one remembers the immense engineering feats of the San Joaquin Valley, New Mexico's hundred thousand acres of desert in Pecos Valley turned into tillable fields, and the South Platte Valley of Nebraska, Wyoming, and Colorado, with its two million acres artificially watered, it seems as if, quite apart from Government operations, Eastern capital must have been drawn upon sufficiently to make this kind of enterprise familiar.

It may be only a matter of time and development before the East changes its attitude toward Irrigation Bonds. The total of our engineering efforts hitherto is as nothing compared with what has been accomplished by the Nile dam at Assuan in watering 6,000,000 acres, or by the Ganges Canal, which fertilizes and makes habitable even twice this amount. Less than 10 per cent. of the total redeemable area in the United States has been reclaimed, and as the West leans less heavily upon Government subvention and more upon local resources and private enterprise we may see Irrigation Bonds of the municipal and Carey types dealt in more freely throughout the country.

CHAPTER XXXIII

RECLAMATION ISSUES: DRAINAGE AND LEVEE BONDS

1242. Levee and Drainage bonds are the prevention and cure, respectively, of the opposite evil: *too much water*. Both kinds of construction are now, and will be, financed in the same spirit and for the same purpose as irrigation works. The spirit, as we have said, is that fostered by a community of interest, resulting in local cooperation under government regulation and guidance; and the purpose, the furtherance of profitable agriculture in lands that hitherto have been wholly or partially unproductive.

1243. Scope and Character. Drainage, on a large scale, has been confined thus far to states bordering on the Ohio and Mississippi rivers, but within this field its operations have been very extensive. Particularly in Ohio, Indiana, Illinois, and Iowa, under intelligent state drainage laws the soil that formerly was waste has been brought to a condition of high culture; and on the Mississippi from Cairo to New Orleans there is a fairly continuous stretch of fertile land reclaimed from the river by levees.

1244. Although much has been done, the work of drainage and levee reclamation is but well under way, and loans are constantly being made in furtherance of both. It has been found desirable to finance these improvements by municipal corporations of one sort or another. Occasionally a city will assume drainage or levee charges as direct obligations, e.g. Dayton, Ohio; but by far the larger number of drainage issues are in the form of county and district loans. In either circumstance the bonds are to be looked upon as any other municipals issued for improvement purposes and to be judged in accordance with the credit of the community, its character, population, valuation, tax-burden, debt limit, etc. In the nature of the case levee construction is a benefit to, and therefore a tax obligation of, cities and strips of land rather than of counties as a whole, therefore levee bonds are usually Municipal or Levee District issues.

1245. Security. Levee District and Drainage District bonds are not dissimilar to Irrigation District bonds, or to District bonds in general. In addition to the usual considerations governing investment in district issues, one should post himself as to the laws of the several states affecting drainage districts; and he should remember that drainage districts have the same rural credit characteristics as irrigation districts. At present Illinois, Louisiana, and Missouri put forth, for drainage purposes, District bonds exclusively; Iowa issues both District and County bonds, but the former are greater in number and amount. Ohio and Minnesota issue all their "Ditch" (Drainage) bonds, as city or county obligations, in large numbers and small amounts. Each of these states made about 21 such loans in 1907, aggregating about \$280,000, and \$500,000 respectively. Iowa, with both County and District issues, spent nearly \$1,000,000. Mississippi, North Dakota, Indiana, Louisiana, Nebraska, California, and even Massachusetts brought out one or two issues under this title.

1246. Levee construction has not required much money recently. Perhaps a million dollars a year will cover the demands. Arkansas, Louisiana, California, Ohio, and Illinois have been prominent in these betterments. The requirements for drainage are three or four times as great.

1247. Municipal Drainage Bonds are held in comparatively high esteem in the West *when from good states*. In Ohio more are issued as 4s or 4½s than as 5s and they are often sold at a premium to the local national banks. A plurality of recent Minnesota issues are 4s, although some are 5s and 6s. They are bought freely by the State Board of Investment just as Colorado Irrigation District bonds are bought for the state school fund, and, in fact, the Louisiana "Parish" Levee District bonds do go to the state school fund. Iowa Drainage Districts are bought by banking and insurance companies operating in the state. With these facts in mind it is safe to say that when such municipal bonds are purchased from Western houses of repute or Eastern houses with Western offices or connections that are conversant with local conditions, they offer a degree of security at least comparable with that of corporation bonds of like income.

1248. Net Return. An Eastern capitalist would have nothing to gain by competing with Ohio banks to get the issues of that state on less than a 4 per cent. basis. But drainage 5s and 6s bought

intelligently at about par are attractive investments. So far as can be computed, the average income basis at which the bonds of 1907 were originally sold by municipalities to banks, bond houses, and investors was 4.867 or $4\frac{1}{2}$ per cent.

1249. Duration. There is as wide a range in maturities as in security and income yield. The duration is from one to fifty years. the average is now slightly over eight years. Most issues are serial.

1250. Market. The market for the city and county issues depends, of course, on the demand for the other loans of the same municipalities. Drainage and Levee District securities suffer by comparison.

1251. Future. The whole Atlantic seaboard, from Maine to Florida, is fringed with strips of salt marsh land that need only the application of plant chemistry and hydraulics on the one hand and public-spirited financial endeavor on the other to redeem them for the intensive agriculture that increasing congestion of population demands. In certain sections, private enterprise has already accomplished a great deal. Malarial tide-marshes, formerly worse than worthless, have been redeemed from rank grass and mosquitoes, and made to yield most desirable products. Good cranberry bogs made from such land on the New England coast are worth \$1,000 the acre. Here, and on the South shores, small garden truck, raised from the drained marshes, has proved well worth while.

1252. But these industries are sporadic. What is wanted for a general development of tide lands is the knowledge and confidence on the part of whole communities that their united endeavors for reclamation will be fruitful and lasting. Toward this end the United States Department of Agriculture, through its experiment stations and drainage engineers is perfecting plans for a system of sea-coast drainage and agriculture, and has submitted to the Federal Government recommendations that will help. The main contention of the Department is that each state, having within its borders considerable salt marsh, should establish simple, but equitable drainage laws that would protect those who bear the burden of development. Such laws should establish the riparian rights of the landowners and "should also make provision for doing the reclamation work as a whole and provide for the issuance of bonds to be a lien upon the lands benefited, to raise money for paying for the work as it is done. These bonds should run for a long term of years at a low rate of interest and be paid in annual instalments

by a tax on the land reclaimed in the ratio that such lands are benefited by the improvement."¹

So it seems that there is an extended future for drainage and levee issues, and in localities that will bring them more closely home to Eastern capital. Therefore they deserve a greater amount of attention than they are now receiving in the East.

¹ See the Annual Report of the Office of Experiment Stations for the fiscal year 1906.

PART IV

THE MATHEMATICS AND MOVEMENT OF BOND PRICES

CHAPTER XXXIV

THE MATHEMATICS OF BOND VALUES

1253. We have now discussed many of the important aspects of bonds as a channel for investment; but before we consider the general course and the minor movements of bond prices, it will be well to run over those practical problems of a mathematical sort that every investor has to meet when he figures the income, cost, present value, or selling price of a bond. Then, too, some defensible stand must be taken as to how an investor should keep his books to know at any time what is his capital invested in bonds, and to compare this "capital estate" with the estimated market value of his securities. Or, if he is acting in a fiduciary capacity, that he may distinguish what is legally capital in this case from what is income, in order to render the income to the life-tenants (the annuitants), and the principal to the remainderman. Bond accountancy, therefore, naturally divides itself into The Mathematics of Bond Values, with its application to the bond tables, etc., and The Basis of Bond Accounts.

1254. Net Returns. It may be said, at the outset, that most of the difficulties met in figuring investment values arise from the fact that the net return is usually different from the periodical cash return which the investment produces. Whether the investment have a maturity or not:—whether it be stock, mortgage, or bond,—if bought at par, so that the net return and the cash return are the same, there can be no questions of moment raised concerning value.¹

1255. Net Dividend Yield: Perpetual Securities. Value is most significantly expressed in terms of income. Indeed we may say yield is the *only* common denominator of security values. The sim-

¹ A compounding of interest or dividends, due to conversions more frequent than once a year, will cause an almost inappreciable difference in the net rate, and therefore in the price. But the bond tables neglect this, and call the net yield of a 4 per cent. bond at par, 4 per cent., irrespective of the interest interval.

plest study of values is to be found in figuring the net return of securities that have no fixed date of repayment, and are not truly loans. Perpetual or interminable loans, such as the Republic of Cuba (Internal Debt) 5s, and the British Consols, and among American private corporation bonds, the Securities Company 4 per cent. Consols; are of this class, therefore the matter is pertinent to a bond treatise. But stocks predominate among non-maturing securities. The returns that come from stocks, therefore, may well designate what we usually seek in figuring such security values: namely, *Net Dividend Yield*.¹

1256. The rate of net dividend yield may be defined as the ratio of the annual cash dividend to the price paid. It is very simple. If a stock costs \$116, and the dividends for the year amount to \$4, the annual net dividend return will be $\frac{4}{116} = .03448 \dots = 3.448 \dots$ per cent. = 3.45 per cent., approximately.

1257. It will be seen that it is not necessary to know the par value of a stock to find the net yield, if we know the cash dividend. This is convenient to remember when figuring the yield of mining and other low-priced stocks. We may have forgotten that the par value of Butte Coalition is \$15, but at a cost of \$20, we can easily figure that the net yield of this stock, when it is paying 25 cents in dividends quarterly each year, is 5 per cent.

1258. The ordinary stock tables, however, are not based on cash dividends or an eclectic par value. Like New York Stock Exchange quotations, they are based on a par value of \$100, and treat the dividend as percentage. A stock like Reading Common, with a par value of \$50 and with \$3 dividends a year, is treated like a 6 per cent. stock of \$100 denomination. The result, of course, is the same, for the ratio remains the same; but having doubled par to get the interest rate in percentage, it is necessary to double the price to maintain its proportionate relation to par in finding the net yield.

1259. To find, in the tables, the net yield of stocks that have a par value of less than \$100, multiply the price in the price column by the number of times the par value is contained in the \$100, and seek the corresponding decimal in the interest rate column. But, if the

¹ There is one real distinction between dividends and the revenues from perpetual loans: the dividend ordinarily is optional, therefore instantaneous; the loan-revenue is obligatory, therefore accruing. Cumulative preferred stocks, with what might be called semi-obligatory dividends, bridge the distinction. Hence the New York Stock Exchange ruling that income bonds be quoted "flat."

par value is more than \$100, divide the price by the number of times the \$100 is contained in it. But simpler by far than the use of any tables is the division of the cash dividend by the price in accordance with the definition of Net Dividend Yield.

1280. It is the universal practice to figure net dividend returns as above. In view of what is to follow, however, attention is called to the fact that this method is open to variation; for it does not take into consideration the fact that some stocks pay dividends annually, some semi-annually, and some quarterly. Obviously, the true return of a stock paying 8 per cent. annually may be considered less than that of a stock paying 2 per cent. every quarter day, for the owner of the stock paying quarterly has the opportunity to invest his dividends and get as additional compensation, whatever interest, dividends, or discount may be had on \$2 for 9 months, \$2 for 6 months, and \$2 for 3 months. Since the reinvestment of dividends is not ordinarily pertinent to an accounting of the transaction, the stock tables do not, of course, take dividend intervals into account. If discrimination were made, as in bond tables, the current stock tables would be those to be used for stocks paying dividends annually. Dividends are usually payable quarterly. That different interest intervals do require different sets of bond value tables is for reasons other than the payment of semi-annual coupons.

1281. Net Interest Yield: Terminable Securities. The rate of net interest yield for bonds is not so simple. It is the ratio of the sum that the owner of the security is entitled to entertain as income, to the cost of the security (accrued interest excepted), considering the length of time before the principal is to be repaid. The trouble with this definition is that it does not define; for we do not know what sum is the owner's true income.

1282. If the bond is bought at a premium or discount, the money value, on any basis of computation, must gradually approach par, since (with the exceptions already noted), par is the value of the invested capital at maturity. In the nature of the case the rate the bond yields cannot change, and therefore, as the amount (or present worth) of the capital invested in the premium bond decreases toward par, and the amount of the capital invested in the discount bond increases toward par, the amount of true income decreases or increases, respectively, in proportion. The net interest rate must be a constant ratio.

1283. It is because the amount of capital invested in the bond (as distinct from the sinking fund) decreases or increases, as the case

may be, that many have the entirely erroneous idea that there is a depreciation of an investment bought above par, and an appreciation of one bought below par. Let us consider a \$1000 bond bought at 90.01, having 10 years to run and bearing 4 per cent. interest. The current bond tables, hereafter fully explained, show us that the net rate of yield on a 4 per cent. bond costing \$900.10 and running for 10 years, is approximately 5.30 per cent. After six months the value of this bond at the same net yield is, according to the tables, about \$903.90. Since no capital has been added, why has there not been a real appreciation in the value of the instrument? Because this \$3.80 of gain in the invested sum has been taken out of the earnings, or interest.

1264. At the six months' period the owner was entitled to draw one-half of the annual 5.30 per cent. on his invested principal, but the limitations in flexibility of his instrument permit him to draw (by cashing the coupon) only one-half of the 4 per cent. of the par value. The apparent gain in the invested principal came from withholding income to which he was entitled on a 5.30 per cent. basis.

Bond value 10 yrs. prior to maturity.....\$900.10

Bond value 9½ yrs. prior to maturity..... 903.90

The so-called "appreciation".....\$ 3.80

Semi-annual Net Yield (½ of 5.30% of 900.10)=\$23.85

Semi-annual Cash Yield (½ of 4% of 1000)= 20.00

Amount Withheld\$ 3.85

(The discrepancy of five cents between the "appreciation" and the "amount withheld" is due to the fact that the shorter bond tables in common commercial use carry values to the second decimal only.)

1265. It follows that the sum of the amounts withheld for the 20 semi-annual periods will equal the discount. By similar reasoning it may be shown that the difference, in a premium bond, between the cash interest paid and the lesser interest earned is equal to the "depreciation," whether the period be full 10 years or any other duration.

1266. A clear and incontrovertible inference from what has been said is that the one mathematical factor making for bond values is the Net Interest Rate. For this reason the bond value tables are

based, not on prices, but on the somewhat arbitrary, but generally informing, rates of net income.

1267. It is possible, however, to reverse this proposition: to consider the bond features as factors determining the net yield. So viewed, the net rate of yield is affected by the price paid, the sum to be received at maturity, the cash sum to be received periodically as interest, the length of time before the principal sum will be repaid, and the frequency of the periodic interest payments.

1268. A summary of the whole matter of net yield reduces topical considerations to the following:—

Recapitulation:

THE FACTORS OF NET RETURN

Net Dividend Yield (of stocks and other perpetual securities)	{ Price Cash Dividend	{ Par Value Nominal Dividend Rate
Net Interest Yield (of bonds and other redeemable securities)	{ Price Redemption Value Nominal Interest Rate Duration Interest Interval	{ Premium or Discount Number of Interest Periods

1269. Ordinarily the phrase "par value" may be substituted for the more awkward "redemption value," for most bonds are redeemed at par. Then the difference between the Price and Par will be the Premium or Discount. But when an issue *must* be redeemed at a premium,¹ or when an issue *has been* redeemed at a premium, and one desires to know what it *has netted*, the bond tables do not cope with the situation; resort must be had to formulas.

1270. Premium. How the factors I Price and II Par, as premium or discount, work with III Nominal Interest Rate to affect the Net Interest Yield, may be seen in the following illustration:—A \$1000 bond, bearing interest at 5 per cent. payable semi-annually is bought for \$1080 ("at 108") and accrued interest. The owner is not entitled to consider that his investment nets him \$50 a year, or 5 per cent., since such part of the \$25 cash interest paid each

* The Improved Property Holding Company (New York) 6s must be paid at 110. This is probably a unique provision among American Corporation loans.

$$\frac{4}{90}$$

$$\frac{4}{90} = 90.0140$$

$$\frac{4}{90.01} = 90.0140$$

$$90 \overline{) 1400}$$

$$1000$$

$$4$$

$$4 \quad 3$$

$$4$$

$$\frac{4}{90} = 90.0140$$

semi-annual interest date must be laid aside for a sinking fund as will accumulate an amount at maturity equal to the \$80 premium. Otherwise the capital of \$1080 would be impaired at maturity to the extent of \$80. For the accounting of a sinking fund for a premium bond, see § 1381.

1271. Discount. If the same bond is bought for \$920 and accrued interest, the owner is entitled to consider that his investment nets him more than the \$50, or 5 per cent. that he actually receives each year; for if, in addition to his coupons, at the semi-annual interest dates he should withdraw from any source and unite with his coupon income sums which would amount at maturity to the \$80 which the par value exceeded the buying price, then this \$80 would pay for and offset the sums drawn; and the capital of \$920 would remain as at the time of investment. For the accounting of an accumulating fund for a discount, see § 1385.

1272. Nominal Interest Rate. It is the effect, upon interest rate, of premium or discount, which is wanting in stock computations. The par value of stock, therefore, is no such vital matter as the par value of bonds.

1273. Duration. In the above illustrations we have not indicated how great should be the semi-annual sums to be laid aside as a sinking fund, in the premium bond, or to be borrowed from somewhere against an accumulating fund, in the discount bond. Since the total amount to be made up is to be in hand at a definite maturity date, the sum laid aside, or borrowed, will be affected by IV the Duration of the bond. The longer the bond has to run, the smaller the compounded sum which must be set aside each time.

1274. Interest Interval. But the sum laid aside each interest date may be looked upon as the "future amount" of the original instalment which has compounded at the net rate. It is customary to consider this interest as compounded upon the regular bond interest dates. Again, the more frequently it is compounded the smaller the sum withdrawn for premium or discount. We have, therefore, a fifth factor affecting Net Interest Yield, called Interest Interval.

1275. Dividend payments, we have said, are usually quarterly, but it is not necessary to consider the interval in finding net dividend returns. Interest payments are generally semi-annual, and the ordinary bond tables are based on the six months' interval. Unless otherwise stated, this interval is to be assumed hereafter in this book. If the payments are quarterly, as in government bonds,

or if annual, then tables based on periods of three months or 12 months must be consulted; or else tables furnishing multipliers by which the results obtained from the semi-annual tables may be converted to conform to the new interest interval. If, however, no such tables are accessible, the results may be obtained by a simple arithmetical process which is worked out in the pages devoted to an explanation of the uses of the bond tables.

1276. The Interest Rate on the Sinking Fund. In this illustration of the effect of premium or discount on net yield, we said that the fund set aside was compounded upon the regular bond interest dates. For the sake of clearness let us now confine the discussion of this point to the case of a premium bond. Why may the investor who is laying aside a portion of his bond interest, twice each year, to create a sinking fund, consider that the sinking fund should be figured as if compounded semi-annually? Because, if he puts the fund into the savings bank it will compound semi-annually.

1277. This question is seldom raised; but another of like bearing is not so rare: Why is the interest earned by the sinking fund assumed to be the same as the net interest yield of the bond? If the 5 per cent. bond of the illustration, bought at 108, has 50 years to run, the net yield is about 4.60 per cent. But the owner cannot put out a small sum at interest, on equal security, to net 4.60 per cent., in all probability. The best he can do is the savings bank, at $3\frac{1}{2}$ or 4 per cent., compounded quarterly. The illustration would be more striking in a bond netting 6 per cent.

1278. The answer to both questions is the same. We are dealing with mathematical tables, which should be, as far as possible, of universal application—ubiquitous and perpetual. The present principles of the bond value tables presuppose an ability on the part of the owner to do with small sums exactly what he can with \$1000. If he can compound his bond principal semi-annually (is the inference), he can compound his sinking fund semi-annually; it is not right to assume another kind of investment in which he can do differently. Likewise, if he can net 4.60 per cent. upon his bond principal, he can net 4.60 upon his sinking fund. In a sense, the very fact that the tables are figured upon that basis *makes* the sinking fund earn 4.60 per cent. It is fairer to assume he can earn that rate than that he can earn any other rate arbitrarily chosen.

1279. As to the sinking fund interest rate, the advocates of a more inductive method of forming the tables say: Let the rate accord with the fact: $3\frac{1}{2}$ to 4 per cent., only, can be earned on small

sums at interest. Let some such average rate be taken which will be approximately correct over a long period of years.

1280. Granted that the matter is of sufficient importance to overcome the obstacles to change, legal and otherwise—is it possible to agree upon a rate which, in all probability, over a period of a century, and from London to Tokio, and from Seattle to Bombay, will approximate the facts more closely than the present? If so, the change would appeal to the writer. As it is, he cannot refrain from quoting against the proposal for a single fixed interest rate, for the sinking fund, the words of a friend who is one of the most prominent advocates of the principle: "Tables issued a few years ago, during the prevailing low rates of money are of little value to-day, when the rates have so largely increased." If a few years will antiquate prevailing interest rates, what may not a century do? From 1892 to 1902 there was an uninterrupted annual fall in the average rate of dividends paid by Massachusetts savings banks from 4.11 to 3.71, and from 1903 the rate has steadily risen from 3.71 to 3.95 per cent. (1908.)

1281. There is some semblance of universality, and therefore more reason, in establishing quarterly intervals for compounding sinking funds. It is quite improbable that the time will ever come when small investments cannot receive quarterly interest. The doubt in this case may well be whether quarterly interest may be had in those parts of the world which do not provide savings institutions for the public.

1282. When the matter is thus viewed in proper perspective, one grows more content with things as they are, however crude. Further discussion of the interest rate of the sinking fund will be pertinent on deriving the bond formulas.

1283. *Inaccuracies in the Determination of the Bond Tables.* Before concluding the subject of Net Yield, it is desirable to call attention to the extent to which investment tables may be relied on. As far as stocks are concerned we have found no variant which undermines the mathematical accuracy of the results. The only variant discussed was that of the dividend interval, and that offered no difficulties in determining the net dividend yield.

1284. In bonds there are several variants, two of which,—the Interest Interval, and the Interest Rate credited as earned by the fund raised to amortize the premium or discount—have already been noted. This latter variant will bear further thought. Since 4 per cent. is the present approximate average interest rate which small

invested sums will return, the higher the net yield of the bonds (above 4 per cent.) the greater the discrepancy between the bond tables and the facts. Whether the bond sells at a premium or at a discount, if the net yield is greater than 4 per cent. the interest credited to the amortization fund is greater than the facts warrant. Therefore, the bond owner is not putting sufficiently large semi-annual sums into the fund. Therefore, the owner of the premium bond should set aside out of his cash interest payments a larger sum semi-annually, and the owner of the discount bond may borrow larger semi-annual sums, in anticipation of the "discount" paid him at maturity,—than the bond tables authorize.

1285. In other words, the present bond tables work in favor of the principal and the owner of the principal, of both premium and discount bonds, and therefore against the recipient of the interest, if another person,—always provided that the net yield is over 4 per cent. This is not a matter of importance, except when it becomes necessary to separate principal and income according to testamentary provisions.

1286. Put in another way still, the purchaser of a premium bond which nets over 4 per cent., according to the bond tables, does not get as great a return as the tables indicate; but neither does the purchaser of a discount bond; for in the case of bonds netting over 4 per cent. the tables credit the amortization fund of the one, and the accumulation fund of the other, with an ability to earn more than they really can in the way of interest.

1287. On the other hand, this disadvantage is somewhat offset by the fact that funds can be compounded quarterly in this part of the world, although the tables assume that they are to be compounded semi-annually.

1288. The third source of inaccuracy arises from the assumption of the tables that the semi-annual instalments of the amortization fund will be instantly reinvested. Although some banks allow interest on daily balances, the savings banks, which pay interest most liberally, are accustomed to start new interest accounts only quarterly.

1289. A fourth source is to be found whenever a bond is bought at any other time than on dates of interest payment. Conceding the principles on which the ordinary tables are established, they are mathematically correct to two decimal places as to the percentage of net return, when no interest has accrued on the price that is the basis on which they are figured for semi-annual periods. Ac-

cruing interest is an increment of the cost to which the interest yield can be adjusted.

1290. The fifth source of inaccuracy is due to the fact that the values are ratios, and since ratios involve many decimal figures, and are seldom divisible without a remainder, the tables are correct only to a given number of decimals, usually two. For large operations a valuable set of extended bond tables has been compiled, which gives to the nearest cent the value of an investment of \$1,000,000.

1291. As a whole these five sources of inaccuracy in the derivation of the net yield are no reflection on the tables, but rather a testimony to the vicissitudes attending the strictest investment. In a measure, they counteract one another; and in transactions involving moderate amounts they are quite negligible.

The nearer to par and to an interest period a bond is bought, the less the discrepancy between the facts and the results obtained from the tables.

1292. SUMMARY OF INACCURACIES IN THE DETERMINATION OF NET YIELD

Net Dividend Yield	{ Dividend Interval, Decimal approximation, if determined by Dividend Tables.
Net Interest Yield	{ Interest interval of the amortization or accumulation fund, Interest rate of the amortization or accumu- lation fund, Implied instantaneous reinvestment of the fund, Accrued interest, Decimal approximation.

Those who have read the preceding pages of this chapter and realize the capabilities and limitations of the tables, but who are interested only in the superficial business use of them, may well drop the argument at this point, to pick it up conveniently in §§ 1314 et seq., which discuss bank discount.

1293. The Derivation of the Bond Formulas. The explanation of how the tables are derived is somewhat complicated at best, therefore of the several possible formulas, the two have been chosen for

derivation which are easiest of understanding to those who are rusty in their mathematics. They are not, however, the shortest.

1294. We have defined the net interest rate as the ratio of the net income to the cost. Instead of deriving our formulas from the relationship expressed in this form it will be better to start with an entirely different but equally true definition or equation.

1295. **The First Formula.** A bond is a promise to pay, I, a fixed "principal sum" at maturity, and II, equal proportionate parts of the principal, called interest (usually in the form of coupons) at regular periods. The principal sum, or par, is not worth par now, since it is a future payment; but the present worth of it may be found, since we know that the entire investment, and therefore every part of it, nets a certain percentage of return. Also all the future interest payments, and their sum, may easily be computed and the present worth ascertained at the same net interest rate. Then the present worth of the bond, at the given rate,—which is the price of the bond,—is simply the sum of the present worths of the par value and of the coupons.

1296. And so, without a book of tables, the price of a bond at any net rate may be computed by any one who has at hand tables of compound interest and of annuities, for the interest payments are nothing more or less than annuities.

1297. This definition of the present worth of the bond furnishes us with the equation which is the basis of the formula. For convenience let us assume that the bond is of \$1, instead of \$1000, denomination.

Present worth \$1 bond = present worth of \$1 plus present worth of coupons.

Let C = cash or coupon payment in cents (or percentage of \$1) each semi-annual interest period.

n = number of semi-annual interest periods.

N = net interest on \$1 for 6 months.

1298. **To Find the Present Worth of \$1 Principal.**

Now we seek the *future amount* of a present sum, when compounding interest, by multiplying that sum by 1 plus the interest rate $(1+N)$ to get a new amount, $1(1+N)$, and multiply this new amount by the *ratio of increase* $(1+N)$ to get a second amount $1(1+N)^2$, or $(1+N)^2$, and continue this process $(1+N)^3$, $(1+N)^4$, etc., for the number of semi-annual interest periods n , until we get ultimate *compound amount* $(1+N)^n$.

1299. For instance, if we are compounding at the rate of 6 per cent. per annum, the semi-annual amounts of \$1 would grow as follows:

$$1 \times 1.03 = 1.03 \text{ in 6 mos., or at 1st period,}$$

$$1.03 \times 1.03 = (1.03)^2 \text{ at 2d period.}$$

$$(1.03)^2 \times 1.03 = (1.03)^3 \text{ at 3d period, and so on.}$$

In like manner at the n^{th} period the amount will be $(1.03)^n$, and the general formula is $(1+N)^n$.

1300. So, in seeking the reverse, namely, the *present worth* of a future amount, we discount, by merely reversing the process of accumulation, and divide the future amount (\$1) by the ratio of increase $(1+N)$, with the result $\frac{1}{1+N}$, and repeat $\frac{1}{(1+N)^2}$, $\frac{1}{(1+N)^3}$, etc., until the divisions equal the number of interest periods,—a process expressed by $\frac{1}{(1+N)^n}$, which is the formula for the present worth of \$1 principal.

1301. Expressed in figures, if we are discounting at the rate of 6 per cent. per annum, the semi-annual “present worths” of \$1 would decrease, according to the duration of the loan, as follows:

$$1 + 1.03 = \frac{1}{1.03} \text{ in 6 mos., or at the 1st period}$$

$$\frac{1}{1.03} + 1.03 = \frac{1}{1.03} \times \frac{1}{1.03} = \frac{1}{(1.03)^2} \text{ at the 2d period}$$

$$\frac{1}{1.03^2} + 1.03 = \frac{1}{(1.03)^3} \text{ at the 3d period}$$

At the n^{th} period the present worth would be $\frac{1}{(1.03)^n}$, and the general formula is $\frac{1}{(1+N)^n}$.

1302. To Find the Present Worth of the Interest Payments or Coupons,

Let us assume that this \$1, 6 per cent. bond runs 2 years and nets 4 per cent.

$$\text{Then } C = .03$$

$$N = .02$$

$$n = 4$$

As the future values of the coupons are each equal to C , the present worths are

$$\frac{C}{1+N} + \frac{C}{(1+N)^2} + \frac{C}{(1+N)^3} + \dots + \frac{C}{(1+N)^n}$$

These form a series known as a geometrical progression, and each term can be obtained from the preceding by multiplying it by $\frac{1}{1+N}$.

Let p denote the present worth of all the coupons.

$$P = \frac{C}{1+N} + \frac{C}{(1+N)^2} + \dots + \frac{C}{(1+N)^{n-1}} + \frac{C}{(1+N)^n}$$

Multiplying by $\frac{1}{1+N}$

$$\frac{P}{1+N} = \frac{C}{(1+N)^2} + \frac{C}{(1+N)^3} + \dots + \frac{C}{(1+N)^n} + \frac{C}{(1+N)^{n+1}}$$

By subtraction

$$P - \frac{P}{1+N} = \frac{C}{1+N} - \frac{C}{(1+N)^{n+1}}$$

Performing the subtraction in the first member, and taking out the factor $\frac{C}{1+N}$ in the second member,

$$\frac{P + pN - P}{1+N} = \frac{C}{1+N} \left(1 - \frac{1}{(1+N)^n} \right)$$

Multiplying by $1+N$,

$$pN = C \left(1 - \frac{1}{(1+N)^n} \right)$$

Hence

$$p = \frac{C}{N} \left(1 - \frac{1}{(1+N)^n} \right)$$

1303. Adding now the present worths of the principal and the coupons, the present worth (P) of the bond is expressed thus:

$$\begin{aligned} P &= \frac{1}{(1+N)^n} + \frac{C}{N} \left(1 - \frac{1}{(1+N)^n} \right) \\ &= \frac{1}{(1+N)^n} + \frac{C}{N} \left[\frac{(1+N)^n - 1}{(1+N)^n} \right] \\ &= \frac{N + C(1+N)^n - C}{N(1+N)^n} \end{aligned}$$

1304. When n is large, $(1+N)$ must be solved by logarithms.¹ If N is the unknown quantity, it must be doubled to get the yield per annum. N may be found by the method of approximations.

¹ The handiest four-place logarithmic tables that are sufficiently accurate are those by Prof. E. N. Huntington of Harvard. They are so arranged that they can be used very rapidly.

For example, a 20-year 4 per cent. bond is bought at 95. Find the rate of income on the investment.

$$P = \text{Principal} = .95$$

$$c = .02$$

$$n = 40$$

$$.95 = \frac{N + .02 (1+N)^{40} - .02}{N (1+N)^{40}}$$

$$.95N (1+N)^{40} = .02 (1+N)^{40} + N - .02$$

Since the bond is sold at a discount N is evidently greater than .02. Try $N = .021$

log .95 = 9.9777—10	log .02 = 8.3010—10
log .021 = 8.3222—10	log (1.021) ⁴⁰ = 0.3600
log (1.021) ⁴⁰ = 0.3600	
8.6599—10	8.6610—10
.0457	.04581
	.001
	.04681

Try $N = .022$	log .02 = 8.3010—10
log .95 = 9.9777—10	log (1.022) ⁴⁰ = 0.3800
log .022 = 8.3424—10	
log (1.022) ⁴⁰ = 0.3800	8.6810—10
8.7001—10	.04798
.05014	.002
	.04998

When $N = .021$ the first member is the larger; when $N = .022$, the second member is the larger. Hence the value of N is between .021 and .022. As the values of the two members are nearer when $N = .022$, work downward from that value.

Try $N = .0219$	log .02 = 8.3010—10
log .95 = 9.9777—10	log (1.0219) ⁴⁰ = 0.3780
log .0219 = 8.3404—10	
log (1.0219) ⁴⁰ = 0.3780	8.6790—10
8.6961—10	.04775
.04967	.0019
	.04965

These figures are as near as could be expected. Therefore $N = .0219$, and $2N$, or the net yield per annum is 4.38 per cent.

1305. One virtue of the first formula, especially in its earlier stages, is the clearness with which it shows the inaccuracy of valuing N in the present worth of the principal as equal to N in the present worth of the coupons. N should be, and is supposed to be, the prevailing rate of interest for securities of the kind. But the prevailing rate for \$1000 bonds is quite another thing from the prevailing rate on \$30 bank deposits.

This reverts to the matter already taken up at large:—the most difficult and most controverted of all the problems of bond mathematics,—with what interest should the coupon payments be credited? It is not so advantageous,—is it,—to have an investment (a real estate mortgage for instance) paid off in small instalments as in bulk? Why not? Because the instalments cannot be so advantageously reinvested; in other words, cannot be reinvested at such a high rate of interest for the same degree of security, etc. If the principal sum $\frac{1}{(1+N)^n}$ is invested to better advantage, how can the coupon investment be equitably credited with only the advantage which can accrue to it? By crediting the N in the coupon investment $\frac{C}{N} \left(1 - \frac{1}{(1+N)^n}\right)$ with a value that will bear the same relation to the N in the principal sum that the earning power of the coupon investment bears to the earning power of the principal sum, as in § 1307.

1306. In a \$1, two-year bond selling to net 6 per cent., the investing public, not realizing the inaccuracy of the present method of computing the tables, and believing that this particular grade of security is worth 6 per cent. as a non-serial investment, pay the equivalent price. If, however, they realized how the bond tables were computed, and if there were a practical way of meeting their desires, they would borrow or lend at what is truly the present worth of a round sum of \$1000 (determined by what that sum could now be reinvested for), plus what is truly the present worth of an annuity of \$30 (determined by what each payment could probably be reinvested for).

1307. At a time that \$1000 sums of the given grade net 6 per cent., and savings banks, which furnish the best investment for small sums, pay 4 per cent., the N of $\frac{1}{(1+N)^n}$ should be .03 and the N of $\frac{C}{N} \left(1 - \frac{1}{(1+N)^n}\right)$ should be .02. *If at any time the investor will make the proper substitutions in the formula to suit the circumstances*

of the time, he will have a more accurate idea of what his security ought to net him, than he can get from the present tables.

1308. A defense of the tables has been set up to the effect that an issue of serial bonds might, with equal justification, be said not to yield the given net rate, because on maturity it might not be possible to invest the proceeds of each bond at the same net rate. But the writer can see no analogy whatever between the net yield in the sinking fund and in the serial issue since it is the *denomination* of the interests sums which causes the greatest trouble, and the denomination of serial bonds is ordinarily the same as the "1" in the $\frac{1}{(1+N)^n}$ of the formula.

1309. As already stated, practical considerations, to our mind, outweigh the theoretical advantage of trying to maintain a truer net interest rate for "N" in the coupon member of the formula. But again, although the objection, in actual practice, is acknowledged, to a differentiation of the two "Ns," there seems to be no valid defense of the common "N" of the present tables in the statement that if we figure the interest on the coupons at the same as the interest on the principal, then "it has been earned." Surely it is not a question of what *has been* earned. It is a question of what *should be* earned; what *is intended to be earned*. The whole function of the bond tables is to approximate the facts in justice to both lender and borrower. And the facts concerning the rental value of investment money do not correspond with the tables as well as one could wish.

1310. Another virtue of this formula is the clearness with which it shows how to figure the cost or net yield of a bond which must be, or has been, redeemed at a premium. The bond tables do not, of course, show this. If a bond *must* be redeemed at 110,¹ the present worth of the principal is greater, but the present worth of the coupons is not changed. In a \$1 bond the

$$\text{Cost} = \frac{1.1}{(1+N)^n} + \frac{C}{N} \left(1 - \frac{1}{(1+N)^n} \right)$$

Likewise if a \$1 bond costing 94 has been called at 102½, what it *has netted* will be found in the same way,—C and n being given in the bond.

$$.94 = \frac{1.025}{(1+N)^n} + \frac{C}{N} \left(1 - \frac{1}{(1+N)^n} \right)$$

1311. Based on the principles of the first formula it is possible to find the price of a bond without reference to the formula or the

¹ See § 1266, and note.

bond tables, providing there are at hand tables of present worth. For then it is merely necessary to find the present worth of an annuity of \$1 for the given interval and duration, and at the given rate, and to multiply this by the number of dollars cash interest. To the result must be added the present worth of \$1 principal, multiplied by 1000 or whatever may be the number of dollars principal returnable at maturity.

1312. A Second Bond Value Formula. There are other ways of deriving bond formulas; but that which gives the simplest algebraic result is based on the fact that the cost of the bond equals the principal or par value plus the premium or minus the discount. In the case of the bond bought at a premium, how is that premium determined?

Let us again take a \$1 two-year 6 per cent. bond netting 4 per cent. The amount received from the semi-annual coupon is .03. But the amount entitled to be considered as income is only .02. Therefore the difference, or .01, is a semi-annual annuity, the present worth of which, when compounded according to the tables at the net rate, is the same thing as the premium.

By the formula already derived, the present worth of the coupon amount is $\frac{C}{N} \left(1 - \frac{1}{(1+N)^n} \right)$; but since, in a premium bond we seek the present worth, not of C, but of C—N, the formula for the premium will be $\frac{C-N}{N} \left(1 - \frac{1}{(1+N)^n} \right)$. Adding par to this to get the present worth of the premium bond, we have

$$\text{Cost} = 1 + \frac{C-N}{N} \left(1 - \frac{1}{(1+N)^n} \right)$$

In the case of the discount bond the net yield is more than the coupon return. The formula for a discount bond, therefore, is

$$\text{Cost} = 1 + \frac{N-C}{N} \left(1 - \frac{1}{(1+N)^n} \right)$$

It will be seen that, even more easily than by the first formula, the cost of a bond may be found from annuity tables by the principles of this formula.¹

1313. The Application of the Bond Formulas. The application of the first formula to conditions under which the tables would not

¹ For an example of a formula derived on entirely different lines, see *Investment Lease*, Albert Hale, Boston. (Out of print.)

COST of
Bond.

= P1

1 - 6%

.03

C0B

P +

-

apply has been illustrated in § 1310. The application to the bond tables themselves is very easily made. To avoid the use of logarithms, a brief duration is desirable. According to the tables the cost or present worth of a 5 per cent. bond running for a year and a half and netting 4 per cent. will be 101.44, or \$1014.40. This price, it will be remembered, is a decimal approximation correct to two places, or to within 10 cents on a \$1000 bond. According to the first formula in its shortest form

$$\begin{aligned}
 \text{Cost \$1 bond} &= \frac{N+C(1+N)^n - C}{N(1+N)^n} \\
 &= \frac{.02 + .025(1.02)^3 - .025}{.02(1.02)^3} \\
 &= \frac{.0215803}{.02122416} \\
 &= 1.01449 \dots \\
 \text{Cost \$1000 bond} &= 1014.49
 \end{aligned}$$

It will be seen that the price obtained by the formula corrects a 2-cent error in the tables, due to decimal approximation.

1314. The Application of Bank Discount to Bond Transactions. He who buys bonds is paid interest, usually at the *end* of each six months' period. If he were paid this interest in advance it would be more profitable to lend to an issuing company by buying its bonds, because whatever interest is already returned is sure; and then again the lender (the buyer) could have this money to let out at interest, as everybody knows; but still further, the lender would not have to lose the interest on the interest accrued to the nominal buying price, as few people realize.

1315. Therefore the banks, which are constant lenders of money, and have to figure more closely than private investors, sometimes insist on buying short term interest-bearing loans, like town notes, as they buy commercial paper; not at a "basis price," and interest, in accordance with the bond tables and formulas, but by bank discount.

1316. Another reason why banks often prefer to purchase short loans by bank discount (hereafter called discount) is that commercial paper is their chief medium of short investment, and for purposes of comparison of rates, and pursuant to habit, they think best in terms of discount.

1317. The mathematical gain by discount is explained as follows:

(a) At a basis price the money invested earns interest on itself

at the given rate; (b) but at discount the money invested earns interest on itself, plus the interest on the discount; or what is the same thing, (c) at discount the money invested earns interest on itself, plus the difference between the basis and the discount prices, plus the interest on this difference at the given rate.

Take \$1000 for two months at 6 per cent.

At Basis

At Discount
1000.00 Principal
10.00 Discount

990.00 Discount Price

(a) 990.099 Basis Price
9.901 Interest

(b) 990.00 Discount Price
9.90 Interest

1000.000 Principal

999.90

.10 Interest gained on the
discount

1000.00 Principal

or (c) 990.00 Discount Price
9.90 Interest

999.90

.099 Difference bet. basis and
discount prices.

.001 Interest on this differ-
ence.

1000.000 Principal

From (b), the interest gained on the discount =.10

From (c), the difference between the two prices, .099
plus the interest on this difference, .001

=.10

1318. The Difference Between Discount Price and Basis Price for Bonds Maturing Within Six Months, and the Total Ultimate Gain. It will often be of interest to know just the amount the lender gains

by bank discount,—particularly on short loans falling within a six-months' period. Suppose a 6 per cent. bond having six months to run, discounted at 4 per cent. in the one case, and priced to net 4 per cent. in the other:

The principal sum	1000.00
The coupon	30.00
<hr/>	
The total principal	1030.00
The discount (6 mos. at 4 per cent.).....	20.60
<hr/>	
Discount price of the bond.....	1009.40
Basis price of the bond	1009.80
<hr/>	
Price gain <i>at the time of purchase</i> , by discounting...	.40
Interest gained <i>during</i> 6 mos. at 4% on gain of .40....	.01
<hr/>	
Total <i>ultimate</i> gain .....	.41

1319. Sometimes a quicker way to arrive at the proceeds \$1009.40 will be to take 98 per cent. of \$1030 immediately.

If the bond had been bought on basis, between interest intervals, so that interest would have accrued, the real gain by discount would have been slightly greater.

1320. To Discount a Bond Having Two or More Coupons Attached: *i.e. Running Over Six Months.* In business one would never be called upon to discount a bond running longer than a year, and only rarely one running beyond six months. Suppose, however, as before a 6 per cent. bond discounted at 4 per cent., against a bond to net 4 per cent., but having nine months to run. For clearness, the purchase of the bond at discount may be looked upon as the purchase of one note (or coupon) of \$30, discounted at 4 per cent. for three months, and of another note (principal sum plus the other coupon) of \$1030 discounted at 4 per cent. for nine months:

Proceeds of coupon	29.70
Proceeds of principal plus coupon.....	999.10
<hr/>	
Proceeds or bank discount price of note.....	1028.80

1321. The Theoretical Gain by Buying at Discount Rather Than at Basis, on a Bond Running Over Six Months, but not Bought on an Interest Date:

Basis price of the above bond.....	1014.60	
Interest accrued for three months	15.00	
		<hr/>
Total basis cost or flat price <i>at purchase</i>	1029.60	
Discount price of bond as already found.....	1028.80	
		<hr/>
Net gain by discount method <i>at purchase</i>.....	.80	

Since the basis cost (\$1029.60) and the discount cost (\$1028.80) will ultimately yield the same sums, namely \$30 in three months and \$1030 in nine months, the ultimate gain by the discount method will be the 80 cents difference in cost plus whatever the 80 cents will earn at say 4 per cent. for the nine months compounded theoretically at the end of three months, when the coupon interest is paid,—or in all, 82 cents.

CHAPTER XXXV

THE USE OF THE BOND TABLES

1322. The bond tables, based on the principles of the formulas, are constructed to show the cost, within at least a cent on \$100, of a bond bearing interest at most of the following rates: 2, $2\frac{1}{2}$, 3, $3\frac{1}{2}$, 3.65,¹ 4, $4\frac{1}{2}$, 5, 6, and 7 per cent., and netting from 2 to 7 per cent. Since there is a much greater number of "net yields" it is desirable to know, than of interest rates that bonds ordinarily bear, the length of the page is usually given to the net yield, which is sometimes graded by eighths, such as 2, $2\frac{1}{8}$, $2\frac{1}{4}$, etc., sometimes by tenths, and even by twentieths. In the subjoined sample page of a commonly used book of bond tables,² one-tenth per cent. divisions have been combined with one-eighth and one-twentieth.

1323. It will be seen that all but one of the Factors of Net Return are to be found on the page. Premium and discount are indicated in columns of value. The nominal interest rates are at the heads of the columns, and the effective interest rates or net yields, at the side. The duration (20 years) is from the day the bond is purchased until its maturity. The tables are computed usually for semi-annual durations from 6 months to 25 or 30 years, and annually from then to 50 years, and, if carried further, by lustra, or five-year periods, to 100 years. The interest interval, however, is not indicated except on the title page. In this table it is, of course, a six-months' period.

1324. Accrued Interest. The table as it stands is accurate to within 10 cents on \$1000 bond, for a duration of exactly 20 years. For greater accuracy the extended bond tables, correct to the nearest cent on a \$1,000,000 bond, should be used. No cashier should content himself with the briefer tables, even though they suffice for ordinary commercial transactions. If, as is probable, the bond was not bought on the exact interest date, to the price indicated in the

¹ As to the reason for this irregular rate, v. §1846.

² *Bond Values*, Montgomery Rollins, Boston, Fourteenth Edition.

20 YEARS.

Interest Payable Semi-Annually.

PER CENT PER AN.	3%	3½%	4%	4½%	5%	6%	7%
2.90	101.51	109.06	116.60	124.15	131.70	145.80	161.89
3.	100.00	107.48	114.96	122.44	129.92	144.87	159.83
3.10	98.52	105.93	113.34	120.75	128.16	142.98	157.81
3½	96.15	106.56	112.94	120.83	127.73	142.53	157.31
3.20	97.06	104.41	111.75	119.09	126.44	141.13	155.82
3¾	96.34	103.66	110.97	118.28	125.59	140.21	154.83
3.30	95.63	102.91	110.19	117.47	124.75	139.30	153.86
3.35	94.93	102.17	109.42	116.66	123.91	138.40	152.89
3½	94.58	101.81	109.04	116.27	123.49	137.95	152.41
3.40	94.33	101.44	108.66	115.87	123.08	137.51	151.96
3.45	93.54	100.72	107.90	115.08	122.26	136.62	150.98
3½	92.85	100.00	107.15	114.30	121.45	135.74	150.04
3.55	92.17	99.29	106.41	113.52	120.64	134.87	149.11
3.60	91.60	98.68	105.87	112.76	119.84	134.01	148.18
3¾	91.16	98.23	105.30	112.37	119.44	133.58	147.72
3.65	90.83	97.88	104.94	111.99	119.04	133.15	147.26
3.70	90.17	97.19	104.21	111.24	118.26	132.30	146.35
3¾	89.51	96.50	103.50	110.49	117.48	131.46	145.44
3.80	88.86	95.82	102.78	109.74	116.70	130.63	144.55
3¾	87.90	94.81	101.73	108.64	115.56	129.39	143.22
3.90	87.58	94.48	101.38	108.28	115.18	128.98	142.76
4.	86.33	93.16	100.00	106.84	113.68	127.36	141.03
4.10	85.09	91.86	98.64	105.42	112.20	125.76	139.32
4½	84.78	91.54	98.31	105.07	111.84	125.37	138.90
4.20	83.87	90.59	97.31	104.03	110.75	124.19	137.63
4¾	83.27	89.96	96.65	103.36	110.04	123.42	136.80
4.30	82.68	89.34	96.00	102.66	109.33	122.65	135.98
4¾	81.80	88.43	95.04	101.65	108.27	121.51	134.75
4.40	81.51	88.11	94.72	101.32	107.93	121.14	134.35
4½	80.35	86.90	93.45	100.00	106.55	119.66	132.74
4.60	79.22	85.72	92.21	98.70	105.19	118.18	131.16
4¾	78.94	85.42	91.90	98.38	104.86	117.82	130.77
4.70	78.11	84.55	90.99	97.43	103.86	116.74	129.61
4¾	77.57	83.98	90.39	96.80	103.20	116.02	128.84
4.80	77.62	83.40	89.79	96.17	102.55	115.32	128.08
4¾	76.32	82.66	88.90	95.24	101.69	114.27	126.96
4.90	75.95	82.28	88.61	94.94	101.27	113.92	126.53
5.	74.90	81.17	87.45	93.72	100.00	112.55	125.10
5.10	73.86	80.09	86.31	92.53	98.76	111.20	123.65
5½	73.61	79.83	86.03	92.24	98.45	110.87	123.29
5.20	72.85	79.02	85.19	91.36	97.53	109.87	122.22
5¾	72.54	78.49	84.64	90.78	96.98	109.23	121.51
5.30	71.85	77.97	84.09	90.21	96.33	108.57	120.81
5¾	71.11	77.19	83.27	89.36	95.44	107.60	119.77
5.40	70.87	76.94	83.01	89.07	95.14	107.28	119.42
5½	69.90	75.92	81.94	87.96	93.98	106.03	118.06
5¾	68.72	74.68	80.64	86.59	92.55	104.47	116.38
5.80	67.57	73.48	79.36	85.26	91.16	102.96	114.74
5¾	66.43	72.27	78.11	83.95	89.78	101.46	113.13
6.	65.33	71.11	76.89	82.66	88.44	100.00	111.56

table must be added "accrued interest" from the last interest date to the day of purchasing; and this accrued interest, figured from any book of aliquot interest tables, will be at the rate of interest the coupon bears, since "accrued interest" serves to reimburse the seller for the bond interest which he has earned up to the date payment is made, and which is paid back to the buyer in the coupon interest at the next interest date.

1325. In accordance with resolutions recently passed by New York bankers in convention, and with the rules of the New York Stock Exchange for dealing in interest-paying bonds on their board, adopted December 23d, 1908:—contracts made after default in payment of interest, and during continuance of default, are to be "Flat" (i.e. without accrued interest). Interest at the rate specified in an interest-bearing bond must be computed on the basis of a 360-day year, i.e. every calendar month is one-twelfth of 360 days, or 30 days; every period from a date in month to the same date in the following month is 30 days. February, therefore, is taken as a 30-day month. Income bonds must be dealt in "Flat." Except as mentioned, bonds on the New York Stock Exchange and among brokers generally, are now quoted at a price "and interest."

1326. Suppose a 20-year 7 per cent. bond paying interest Jan. and July 1, is bought April 26 for delivery April 27 at 115 and accrued interest. In addition to the \$1150 cost as of Jan. 1 there must be added \$22.56, which any book of 360-day interest tables will show has accrued on \$1000 at 7 per cent. for the 3 months 26 days elapsed since Jan. 1. The total cost, therefore, as accepted by financial houses, will be \$1172.56.

1327. The buyer sometimes objects to paying accrued interest, usually because he does not see at first how he will be reimbursed for the accrued interest outlay. We know of sales which have been lost because the prospective buyer thought the interest accumulation would alter materially the basis of net return upon the investment. He will be repaid the \$22.56 on July 1, or in 64 days, when the next coupon of \$35 is cashed; and the difference of \$12.44 between the coupon and the accrued interest reimbursement, is, of course, the interest at 7 per cent. on \$1000 for 64 days to which he is entitled by ownership.

1328. A more defensible objection to the arrangement of accrued interest as it is figured might be raised on the ground that the buyer loses the use of the accrued interest from the time of purchase until he regains it at the next interest period. This

slight loss of interest on the accrued interest should be reckoned at the current savings bank rate, and the time should be reckoned, like bank interest time, with 365 days to the year, rather than like bond interest time, with 360 days.

1329. The loss at 4 per cent. on 22.56 for 64 days would be approximately .16 and would probably be collectible at law from the seller. Since a variation of one point in the second decimal of the current bond tables is equivalent to a variation of 10 cents in price, the corrected cost of this bond would be 115.02 and interest. But the difference of .02 in price is too small to change the basis of net return at the second decimal, except for loans of brief duration.

1330. Although "price and interest" is the usual way of selling bonds, sometimes the interest is added to the *basis cost* and the bond sold at a "flat price." Flat price in this case, then, means interest included. Flat price in the Stock Exchange ruling above in reference to defaulted and income bonds, means "without accrued interest,"—quite a different thing. This double use of flat price is quite confusing but general.

1331. *Bond Issues of One Fixed Duration.* Having disposed of these preliminary matters, we can canvas the uses of the bond tables under all conditions, with this 20-year page for the purpose. First let us assume that the issue is not callable, or redeemable at all, prior to the date regularly set for payment.

1332. *To Find the Net Yield at a Tabulated Price* is seldom the object, because such a small proportion of all possible prices can be set in the tables. Such price must be in the perpendicular column corresponding with the coupon rate of the bond. The rate per cent. per annum in the extreme left column on the same horizontal line will be the net yield at the price.

1333. *To Find the Price at a Tabulated Net Yield* is a most common requirement because the ultimate determination of price is net yield, and most of the convenient and generally used decimal and fractional intervals between any per cent. and the next are to be found in the tables. Find the tabulated net yield in the extreme left column. The price along the horizontal line in the perpendicular column bearing the same coupon rate as the issue, will be the proper price. But since the shorter tables are based on bonds of \$100 denomination, the price will be multiplied by 10 for a \$1000 bond. This multiplication by 10 without a third correcting decimal is the cause of a possible inaccuracy of as much as 9 cents a bond. For

this reason those who deal frequently or in large amounts should be at least familiar with the extended tables.

1334. Untabulated Figures: Interpolation. To Find the Net Yield at an Untabulated Price. From this point we deal with the commoner situation in which the given figures have no identical correspondent in the tables. The net yield or price sought will be found between two figures in the tables,—generally adjacent. Therefore the process of finding the untabulated figure is a process of Interpolation.

1335. What will be the net return of a 6 per cent. 20-year bond (with 20 years to run from date of purchase) selling at 125? In the 6 per cent. column 125 lies between 125.37 and 124.19. 125.37 is a $4\frac{1}{8}$ per cent. basis and 124.19 is a 4.20 basis. The net return of 125 must be somewhere between $4\frac{1}{8}$ and 4.20 per cent., but nearer $4\frac{1}{8}$; or expressing both rates by decimals only, between 4.125 and 4.200 per cent.

1336. There is no direct mathematical process by which this yield can be determined with exactness; but there are two methods of approximation, the first of which, called the method of proportion, can be more easily understood and applied, and suffices for most purposes. It may be expressed almost graphically:

Difference	Yield	Price	Difference
?.....	{ 4.125 =	125.37 }	.....37
.....?	{ x =	125.00 }	.....81
	{ 4.200 =	124.19 }	
<hr/>			
.075			1.18

$$\frac{.37}{1.18} \times .075 = .024$$

$$4.125 + .024 = 4.149 \text{ or } 4.15$$

1337. The simple presentation is easier of understanding than the formal statement, which is as follows: Since the lower the price the higher the net return, an intermediate rate of yield will be numerically distant from its adjacent rates in approximately the same ratio that the intermediate price is distant from its adjacent prices.

Let x = the unknown yield. The difference between x and 4.125 will bear approximately the same relation to the total income varia-

tion of .075 that the price difference of .37 bears to the total price variation of 1.18.

$$\frac{X - 4.125}{.075} = \frac{.37}{1.18}$$

$$X - 4.125 = \frac{.37}{1.18} \times .075 = .024$$

$$X = 4.149 \text{ or } 4.15$$

1338. A variation of this first method shortens the computations, but inclines to be slightly less accurate, because price differences lessen as prices approach par. If instead of taking the net yield corresponding to the nearest price above, i.e. 125.00, we had taken the yield that was .10 less than 4.20, the process would have been simplified as follows:

Difference	Yield	Price		Difference
	4.10	=	125.76	.76
	x	=	125.00	
	4.20	=	124.19	.81
<hr/>				<hr/>
.10	.....			1.57

$$\frac{.76}{1.57} \times .10 = .048$$

$$4.10 + .048 = 4.148 \text{ or } 4.15$$

1339. The second method, contrived by Mr. Charles E. Sprague, is a method of gradual approximation. The text of Mr. Sprague's explanation is as follows:

"Let us give the name of trial divisor to the difference between the values of a 4 per cent. and a 5 per cent. bond on the same basis and for the same time; or, what is the same thing, between a 5 per cent. and a 6 per cent.; always 1 per cent. difference in the nominal rates.

"Assume arbitrarily for trial any income rate; the nearer the true rate, as indicated by the tables, the less the work of approximation. Find the trial divisor at this trial rate. Divide the given premium (or discount) by this trial divisor. The quotient is to be subtracted from the nominal rate if the bond is above par, or added to it if below par; the result will be an approximate rate which will be nearer the truth than the trial rate, being too great when the trial rate is too small, and vice versa. This approximate may be used as a new trial rate, and will result in a still closer approximation."

1340. In the 6 per cent. 20-year bond cited above as selling at 125, it is given to find the net yield. In the 20-year 6 per cent. column start with 4.20—*too large*, but the basis for a trial divisor.

A 20-year 6 per cent. bond on a 4.20 basis is worth.... 124.19

A 20-year 7 per cent. bond on a 4.20 basis is worth.... 137.63

Therefore the trial divisor is.....13.44

$$25 \div 13.44 = 1.86$$

$$6 - 1.86 = 4.14$$

4.14 is *too small*, but the basis for a new trial divisor.

The trial divisor of 4.20 = 13.44

$$4.14 = x$$

$$4.10 = 13.56$$

(From the tables.)

By proportion the trial divisor of 4.14 = 13.51

$$25 \div 13.51 = 1.85$$

$$6 - 1.85 = 4.15$$

4.15 is *too great*, but the basis of a new trial divisor.

The trial divisor of 4.15 is 13.50.

$$25 \div 13.50 = 1.852$$

$$6 - 1.852 = 4.148$$

4.148 is *too small*, and 4.15 is *too great*, but the net yield is found to two decimals, and agrees with the result found from the method of approximation by proportion. 4.15 is approximately the net yield of a 20-year 6 per cent. bond at 125.

1341. *To Find the Net Yield at a Flat Price* is a problem of like nature to the previous. Since flat price for defaulted bonds means price with interest accrued, and accrued interest is never taken into consideration, commercially, in reckoning interest yield, the procedure is to subtract the interest accumulation to find the "price and interest," and continue as before.

1342. Because bonds in default are sold flat they may reach a high premium if the prospect is bright that overdue coupons will soon be honored. Obviously the return may be no such low rate as the premium at first glance might suggest. But it cannot be computed until the time of delayed coupon payment is made known. Then it will most easily be found by substitution in the first formula.

1343. *To Find the Price at an Unstabulated Net Yield* calls for the interpolation by proportion of a price between two others in the tables. By the semi-graphic method employed before it is easily expressed for the 20-year 6 per cent. bond as follows: At what price (for instance) does the above bond net 4.15 per cent.?

Difference	Yield	Price	Difference
.10	4.10	= 125.76	1.57
	4.15	= x	
	4.20	= 124.19	

Rate difference of .10=1.57 of price difference

Rate difference of .05=.785 of price difference

125.76—.785=124.975=124.98

1344. It will occur to many that simple proportion may not always be accurate, even to the two decimal places of the tables. This conclusion will be reached on noting in the 20-year page that the difference in price of a 6 per cent. bond on a 2.90 and a 3.00 basis is not the same as the difference between the prices at a 3.00 and a 3.10 per cent. basis. The former difference is 1.93 and the latter 1.89. A careful examination of many similar cases will show, among premium bonds, that the higher the premium the greater the difference; and among discount bonds, that the greater the discount the less the difference; and since at a given yield, the longer the loan the greater the premium or discount, the greater opportunity for error lies in computing intermediate proportion in long-term loans. A means must be found for correcting these discrepancies and for ascertaining how short the maturities for which correction is needed.

1345. Mr. Sprague has ingeniously devised a "one-eighth rule" which correctly adjusts the error; but, so far as the writer knows, no one has explained how this rule is derived.

Because the error is greater in long loans, and at high premiums, it will be most apparent and easy of correction in, say a 100-year, 5 per cent. bond. It will be greater, also, when the interpolated yield is the furthest possible (.05) from the nearest tabulated yield.

In the excerpt below, from the 100-year page of the tables, the "2d difference" is obtained by subtraction in the column of the "1st difference."

To correct the price of a 2.75 per cent. yield found by proportion:

	Basis	Price	1st Difference	2d Difference
(large)	2.70	= 179.36	5.66	.31
(small)	2.75	= 176.53 (by proportion)		
(large)	2.75	= 176.49 (by the table)		
(large)	2.80	= 173.70	5.35	
(large)	2.90	= 168.35		

The first column of differences shows that the *rate* of difference changes materially between each .10 per cent. of the income bases; and the second column of differences shows what the rate of change is. Since in this case we have the price at a 2.75 basis, not

only by proportion, but by the tables,—it remains only to establish some approximate relation between the discrepancy 176.53—176.49, and the rate of change in each .10 per cent of basis (.31) to have a method for correcting the error in simple proportion.

$$176.53-176.49=.04=\frac{1}{8} \text{ of } .31, \text{ approximately.}$$

Hence the rule: Whether above par or below, subtract one-eighth of the second difference from the approximate value of the proportion to find the true value.

In order to make a correction the second difference must be more than .04, so that one-eighth of it, when "rounded off," will equal .01 or more,—to be subtracted from the price obtained by proportion. Occasional second differences of .05 will be found in the ordinary tables as early as the 22d year, and the test should therefore be applied from the 22d year on,—that is for bonds running for 22 years or more.

1346. To Find the Net Yield at an Untabulated Coupon Rate. By the laws of some states (such as those requiring all bonds to be sold at par or above) it is sometimes necessary for the smaller municipalities to issue bonds at unusual rates of interest. On other grounds 3.65 per cent. (one cent a day on \$100) is an odd coupon rate of sufficient vogue and long standing to have obtained a place in some tables. All such untabulated rates may be approximated by proportion.

To find the net yield of a 20-year 3.35 per cent. bond at 72.

Difference	Coupon Rate	Net Yield	Difference
.35	{ 3.00 = 5.28		} .62
	{ 3.35 = x		
.15	{ 3.50 = 5.90		
<hr/> .50			
	$\frac{.35}{.50} \times .62 = .43$		
	$5.28 + .43 = 5.71$		

That results like this are only approximate is settled by reversing the process. A 20-year 3.35 per cent. bond on a 5.71 basis gives by proportion the price 72.08 instead of the price 72, with which we started.

1347. To Find the Price at an Untabulated Coupon Rate. From the second bond formula, we know that a premium or discount may be looked upon as a "sinking fund" to amortize, or accumulate, the difference between the coupon rate and the net rate; and that at maturity the fund so collected will equal the premium or discount.

The difference between a cash rate of 5 per cent. and a net rate of 4 per cent. is \$10 per bond; and between a cash rate of 6 per cent. and a net rate of 4 per cent. is \$20; and between 7 per cent. and 4 per cent. is \$30, etc. Therefore the premium, or discount, or price, increases in arithmetical ratio with the increase in cash rate. Stated more generally, the price of a bond, at any net rate, and at any odd coupon or cash rate may be exactly ascertained to two decimals by proportion with the prices of larger and smaller coupon rates at the same net yield. Therefore it is very easy to find the price at a given net yield of the municipal 4½s, like the recent New York City issues.

1348. In proof, read the 20-year table from left to right, at any income basis. At 4.70 net, each half per cent. in cash rate increases the price by 6.44, and 1 per cent. increase in cash rate doubles the increase to 12.88; except that the increase may be .01 less, due to the rounding of the last decimal in the price.

To find the price of a 20-year 9 per cent. bond on a 4.70 basis.

Coupon Rate		Price		Difference
3%	=	78.11	}	38.63
6%	=	116.74		
9%	=	x		38.63

By proportion a 9 per cent. bond on a 4.70 basis = $116.74 + 38.63 = 155.37$.¹

1349. This is a more accurate ascertainment of the price than to find the price difference between 6 and 7 per cent., multiply it by 2, and add the result to the 7 per cent. price (which would give 155.35), since the loss by approximation, in rounding the second decimal in the 7 per cent. price, is doubled when multiplied by 2.

¹ This method is not strictly interpolation (between two given rates), but rather projection; but, as the principles are the same, we call attention to a distinction rather than a difference.

To find the price of a 20-year 3.35 per cent. bond on a 4.70 per cent. basis.

Difference	Coupon Rate	Price	Difference
.35	{ 3.00 = 78.11	}	6.44
	{ 3.35 = x		
.15	{ 3.50 = 84.55		
<hr/>			
.50			
$\frac{.35}{.50} \times 6.44 = 4.51$			$78.11 + 4.51 = 82.62$

1350. *To Find the Net Yield at an Untabulated Duration.* Any bond not bought on an interest date may be considered as having an untabulated duration.

To find the net yield of a 7 per cent. bond maturing in 20 years, 2 months, and 15 days, the price of which is 159.83.

Duration	Net Yield
20 yrs.	= 3.00
20 yrs. 2½ mos.	= x
20 yrs. 6 mos.	= 3.05
$\frac{2\frac{1}{2}}{6} \times .05 = .02$	
$3.00 + .02 = 3.02$	

1351. Commercial usage goes no further in correcting the net yield between interest periods; but in short-time loans the interest lost on the accrued interest may alter the yield perceptibly, as already noted.

1352. The loss on a \$1000 bond or note bearing interest at 3½ per cent., bought 3 months and 27 days after the last semi-annual interest date, is 8 cents, or approximately .01 in the price column. If this bond or note matured at the next interest date, and were sold at par and interest, the loss in interest on the accrued interest would bring the cost up to 101 and interest, and change the yield from 3.50 to 3.49. *Tantum sufficit!* This is one reason why very short term loans are advantageously bought by discount rather than as interest-bearing.

1353. If a bond runs over 50 years it might even be bought on an interest date and yet have untabulated duration, since the tables ordinarily give prices and bases only at 5-year intervals for terms longer than 50 years. But this lustral variation in net yield admits correction by proportion.

To find the net yield of a 98-year 5 per cent. bond selling at 220.

Duration	Net Yield
100 years	= 2.11
98 years	= x
95 years	= 2.09

$$\frac{2}{5} \times .02 = .01 \text{ (to 2 decimals)}$$

$$2.11 - .01 = 2.10$$

1354. *To Find the Price at an Untabulated Duration.* Since only two of the 365 days in the year are interest dates (for most bonds), and the price at a given yield always changes radically from one semi-annual period to the next, it is almost always necessary, in finding the price of a bond at a given net yield, to adjust it to the day of purchase. This is done by proportion. At what price will a bond running 20 years, 4 months, and 10 days, net 4 per cent.?

Difference	Duration	Price	Difference
4 1-3 mos.	20 yrs.	= 113.68	} .22
1 2-3 mos.	20 yrs. 4 1-3 mos.	= x	
	20 1-2 yrs.	= 113.90	
<hr/>			
6 months			

$$\frac{4 \frac{1}{3}}{6} \times .22 = .16 \text{ (approx.)}$$

$$113.68 + .16 = 113.84$$

Since the price of this bond varies .22 in 180 days, or .01 in about 8 days, or 10 cents in 8 days there is an approximate variation of about a cent a day. At the given net and cash bases the *rate* of difference in price over a number of years is so constant (not varying over .01 per annum) that no correction of the method of proportion is necessary, within an interest interval.

1355. To Find the Net Yield at an Untabulated Interest Interval.

The bond tables in ordinary use are, of course, based on an interest interval of 6 months. It is sometimes desirable to compare semi-annual interest-bearing bonds with quarterly and annual interest-bearing bonds to see what would be gained in net yield or price, in the former case, or lost, in the latter.

In order to compare such bonds it must be remembered that by net yield is meant, as before, net yield per annum, figured *semi-annually*; for if net yield meant one thing in a semi-annual bond, and another thing in a quarterly or annual bond, there would be no common basis of comparison.

What would be the gain in the semi-annual net yield if a 20-year 6 per cent. semi-annual bond, selling at 125, were payable quarterly? Find the cash rate of the quarterly bond.

First quarter's coupon	\$15.00
Interest on coupon at 4% for 91 days.....	.15
Second quarter's coupon.....	15.00

Semi-annual cash rate of quarterly bond....	30.15=6.03 per cent.	coupon rate
Semi-annual cash rate of semi-annual bond..	30.00=6.00 per cent.	coupon rate

The problem now resolves itself into finding the net yield of a 20-year 6 per cent. semi-annual bond at 125, and a 20-year 6.03 per cent. semi-annual bond at 125. The difference in net yield will be the figure sought.

Coupon Rate		Net Yield
6.00	=	4.149 (\$ 1334 et seq.)
6.03	=	x
7.00	=	5.007
x=4.175 (\$ 1346)		
4.175-4.149=.026=.03		

Approximately, then, the gain would be .03 per cent. in net yield if this semi-annual bond were payable quarterly. Quite generally, as in this case, the gain in net rate and in cash rate will be the same.

1356. To Find the Price at an Untabulated Interest Interval. Suppose the two 20-year semi-annual 6 per cent. bonds just men-

tioned were not selling at 125, but on a 4 per cent. semi-annual basis. To find the value of the quarterly bond. The process again is based on the coupon or cash rates.

Coupon Rate	Price
6.00	= 127.36
6.03	= x
7.00	= 127.03

$$\frac{3}{100} \times 13.67 = .41$$

$$127.36 + .41 = 127.77$$

1357. *To Find the Price of Bonds Issued or Maturing at Other than the Regular Interest Dates.* There are issues of bonds, the prices of which cannot under any conditions be determined by the bond value tables. There has been reference, for illustration, to an issue which is called at a premium, and thus not conformable to the conditions of the tables. There are other issues which, for price, are not referable to the tables (although the error of the tables might be slight) because the date of issuance, or maturity, or both, does not coincide with the regular interest dates; and the bond tables presuppose coincidence.

1358. There are two ways by which the issuing company can meet the resulting irregular interest obligations: by establishing long or short initial or terminal periods. If the overlap is only a month or two, the adjacent periods will probably be lengthened; otherwise there will be short periods. In either case the value of the interest coupons will naturally bear the same relation to the semi-annual coupons as the duration of the irregular period bears to the six-months' period.

1359. Now we have seen that, in accordance with the principle of interest-compounding, the bond value for each successive period is found by multiplying the value of the preceding period by the ratio of increase, and subtracting the coupon value. Conversely, therefore, the value of any period can be found by adding the coupon to the next succeeding value, and dividing by the ratio of increase.

If, for instance, then, we are seeking to ascertain the value of a bond with an irregular initial period, but a regular terminal, we have only to find the value for the regular periods by the bond interest tables, add to this the long or short coupon value, and

divide by the long or short interest ratio. The result is the initial value of the bond.

1360. Since the principle is applicable at any point in the life of the bond, the same process may be applied to short or long terminal periods. First find the value for the regular periods, add the irregular terminal coupon value, and divide by the irregular ratio of increase. This rule gives us the basis price of a bond having less than six months to run.

1361. So, also, if we are seeking the price at issuance, of a bond with irregular initial and terminal periods, the process must be applied to both irregular periods.

The Pennsylvania Railroad Company has outstanding an issue of Convertible 3½s, due Oct. 1, 1915. Interest is payable June 1, and Dec. 1. There is a short coupon of \$11.67. Suppose a bond of this issue is bought Nov. 1, 1910, to net 4 per cent. To find the cost it will be necessary to use the extended tables.

Price as of June 1, 1915, maturity.....	\$979.2526
Terminal Coupon	11.67

• \$990.9226

Terminal ratio of increase=1.01333, etc.

Price for the full life of the bond $\left(\frac{990.9226}{1.01333, \text{ etc.}} \right)$\$977.89

The natural impulse would be to figure the price from the tables as if the interest dates were April and October. This price is 977.89. The difference in this case is, and it ordinarily would be, 1 cent per bond. Therefore the correct method of price ascertainment is necessary only for schedules of amortization and accumulation.

1362. Bond Issues of Serial Duration. One of the characteristics of industrial corporations is that they consume their own assets, very generally, in the production of wealth. Now that many of the larger industrial companies have reached a financial stability that warrants bonding, many of their conservative issues are planned to be retired in serial instalments in such way that the depreciation of the plant or commodity, or stock, which is behind the bonds, will be less, annually, than the decrease in amount of bonds outstanding. In this way the equity, or margin of safety, increases during the life of the loan.

1363. To Find the Price of a Serial Issue. If the loan is not paid off in equal amounts at equal intervals, there will probably be no way of computing the price at which the loan, as a whole, should be bought to return a given ratio on the investment for the length of time each bond is held. All that can be done in such a case is to price each maturity on its basis of net return and add the various costs.

1364. But, perhaps, more often than not there is uniformity in the amounts and intervals. The commonest funded instalment loans are the 10-year serial equipment, steamship, and timber issues, which are usually retired in equal annual amounts, beginning one year after date of issuance. The price of an issue of this sort, *en bloc*, at a given net yield, will be found by adding the prices of the several members of the series, at the given net rate, and dividing by the number of maturities to get the average. The price of a 10-year serial equipment issue of 5s on a 4 per cent. basis, to be retired in equal annual amounts, is 104.76.

1365. It is still a common but wholly wrongful custom to find the price of a serial issue at the "average maturity," but the result is materially in error, because the price of the several maturities is governed not only by *duration* (to which the arithmetical mean would apply), but also by the semi-annual compounding of the difference between the net and the cash rates, to build the sinking fund, and there is no arithmetical mean to compound interest.

1366. The average price of this serial loan is 104.76, and the price at the average maturity is 104.89. Therefore the error in averaging the maturity is .13, which, in premium bonds, results in so much loss to the dealer who buys the entire issue on "basis" at the average maturity, and sells on basis, figuring each maturity. Conversely, in discount bonds the dealer would have gained by the error.

1367. To Find the Net Yield of a Serial Issue. If this loan were brought to a dealer in its entirety, and offered at the price of 104.76, he would have no mathematical means of finding by the tables that the net rates of the several maturities *taken separately* were all 4 per cent. The average price was not found directly from the tables but by averaging the several prices, and to find the net yield he must have the several prices. But although the average price can be found from the several prices, the process does not admit of reversal within the reasonable limits of simple arithmetic or algebra.

1368. If the dealer knows or believes that the price was based

on a uniform net yield for the several maturities, his rule of thumb method of ascertaining it is to take the average maturity, and if the average price is a premium, to find what net yield in the tables corresponds in the 5 per cent. column to the next lower price. If the price is a discount—to the next higher price.

1369. Bonds of Optional Duration. Many issues of bonds that have a definite date of maturity may be redeemed by the issuing company before maturity. These are sometimes called redeemable issues, although, unfortunately, the same term is also applied, generically, to all bonds that do not represent perpetual loans. For this reason the writer advocates (and has followed in this book) the use of the phrases "terminable bonds" in antithesis to "perpetual bonds," and "redeemable bonds" in antithesis to bonds not callable before maturity. The terms of redemption for bonds of fixed maturity are various. They may be callable any time after issuance; or at a certain date; or before a certain date;¹ or between certain dates; or on and after a certain date. They may be callable at par; or at a premium. All these phases of optional redemption affect the mathematics of investment, particularly of bond values.

1370. Since *duration* is the variable, the problem is to find whether the earliest or latest maturity should be the basis for computations of price and net return. The principle involved is that the interests of borrower and lender are antagonistic, and since the option of redemption (or repayment) lies with the borrower, the lender should be on the safe side, and figure the value (return) of his investment on the least favorable possibility.

1371. Duration Computed for Bonds Redeemable at Par.

(a) When the cost is par and the redemption at par, duration is negligible, for the cash and net return are always the same.

(b) When the cost is a discount and the redemption at par, the longer the duration the less it will yield, or be worth; therefore assume ultimate maturity.

(c) When the cost is a premium and the redemption at par, the longer the duration the greater the yield; therefore assume proximate maturity.

1372. Duration Computed for Bonds Redeemable at a Premium.

(a) When the cost of the bond is par, or

(b) When the cost of the bond is a discount, and the redemption at

¹ An unusual restriction; but the Chicago City Railway Company First 5s are optional at 110 and interest if called for payment before February 1, 1912, but not thereafter.

a premium, the yield will be least if held to maturity, therefore assume ultimate maturity.

(c) When cost and redemption are at a premium, it will be necessary to find the net return to the ultimate maturity; and then, if the price which corresponds to this net return or value, at the proximate maturity, is less than the callable price, it is correct to assume the bond will not be called (since if it were called, more would be paid, mathematically, than it is worth), and consequently to figure the bond to the ultimate maturity. But if the basis price is more than the callable price, we must assume proximate maturity.

In the two cases in which it is fair to assume the bonds will be called at the earliest possible time, it is customary to indicate the possibilities of duration and net return, for instance as follows:

"20-40 year 6s, to net 4.40-6.00 per cent."

That is, the bonds are 40-year 6s, redeemable in 20 years, and selling at a price to net 4.40 per cent., if called as soon as redeemable, and it is right to expect they will be. For any length of time they may be allowed to run after 20 years they will return the investor the full cash rate.

1373. Other Bond Tables. Besides the ordinary commercial tables and the extended tables, there are others of service to people who deal extensively in bonds, notably those for serial issues and for convertible bonds, and the tables used in Canada in connection with municipal bond issues, to figure the cost and net return of bonds which must be repaid, periodically, in sums to cover the interest and such proportionate part of the principal as will retire the issue by equal instalments after a certain number of years. This scholarly treatment of debt reduction is on the decline in Canada, and it has never been of much interest to United States investors. Our bond houses do not encourage it because investors prefer to have their principal returned to them in round amounts,

CHAPTER XXXVI

THE KEEPING OF INVESTMENT ACCOUNTS

1374. The Basis of Investment Value. It is the main premise on which rests this entire treatment of bond principles, that the fundamental difference between speculation and investment lies in the source of anticipated revenue and the methods employed to achieve that revenue. Profit is the aim of speculation: income, that of investment. One of the leading periodicals devoted to the subject of speculation, on the first page of text regularly prints the distinction for its motto:

"Speculation: Operations wherein intelligent foresight is employed for the purpose of deriving a profit from price changes.

"Investment: The placing of capital in a more or less permanent way, mainly for the income to be derived therefrom."¹

Although security of principal is of first investment importance, it is not the *distinguishing* characteristic of investment, but rather of hoarding. Hoarding does not come within the category of finance. Security of principal may be as strong an influence in real-estate speculation,—particularly speculation in improved business property,—as it is in bond investment.

1375. Again, in the opening paragraphs of the first of these chapters on bond mathematics, income, the investment essential, was seized upon as the value-determining factor on which all else depended. "Value is most significantly expressed in terms of income yield. Indeed income yield is the only common denominator of security values."

1376. By the statement that the net return is the only common denominator of values is meant that there is no value significance to an isolated fact of price or cash return, or duration.

For example, a \$1000, 5 per cent. bond, selling at 99.07 and interest, may be cheaper than another selling at 98.07 and interest, because it may "run off" in two years and thus net 5½ per cent.,

¹ *The Ticker and Investment Digest*, New York.

whereas the other may run for 10 years and net only $5\frac{1}{2}$ per cent. Or the second bond, running 10 years, might be bought at 98.07 and 8 years later be sold at 99.07, yet result in a loss, because it was bought at such a high price that it netted only $5\frac{1}{2}$ per cent., and to avoid loss should have been sold at not less than 99.53, a $5\frac{1}{2}$ per cent. basis. Or again, a 6 per cent. bond, with 4 years to run, which is purchased at 105.44, is cheaper, mathematically, than a 3 per cent. bond of like duration purchased at 95, because the premium bond makes a net return of $4\frac{1}{2}$ per cent. and the 3 per cent. bond, of only $4\frac{3}{8}$ per cent.

It is, therefore, only in the interrelation of all three facts: the price, the periodic cash interest, and the life of the loan,—that valid investment value is derived for purposes of appraisal and comparison. There is only one universal expression of this value: in percentage of net income to invested capital. Any \$1000 bond that nets 5 per cent., semi-annual, is always more valuable, mathematically, than any \$1000 semi-annual bond that nets 4.99 per cent., irrespective of cost, coupons, or maturity.

1377. Book Value. If the contention is correct that investment, as distinguished from speculation, seeks revenue from income rather than from profit, and that investment value is expressed by, and determined by the rate of net income, then a proper keeping of investment accounts has, as its basis, the net income return on the capital. Since the investment assumption ordinarily is that the bond will be held to maturity,¹ it is entered on the books at cost, and carried from interest date to interest date on the basis of investment value corresponding to the cost. Or, to reverse the statement,—more in line with the facts,—since the cost of the bond is determined *solely* by the rate of income yielded by bonds of its particular grade and characteristics, the cost is entered as the first investment value, and all subsequent investment values to the last, which is par, are entered at the same net rate.

True book value, therefore, may be defined as the price at which the bond must be sold, at any given time, to bring the new purchaser the same basis of yield as the bond brought the former purchaser at the former cost.

Then how absurd it is for any one who pretends to keep books, to carry at the purchase price until maturity any bond not bought at par, and then, as by magic, to wipe out the premium cost or to create the discount gain. Equally fictitious is the labor-saving

¹ For exceptions, v. §§ 1369-1372.

device of charging to profit and loss the premium or discount of a bond, at the time it is bought. In either case, if the bond should be sold, there would be no record, on the books, of the gain or loss by the sale. Such a system of bookkeeping for trust accounts is illegal in some states and inequitable everywhere; for the integrity of either capital or income will be impaired, with hardship to the beneficiaries under one or the other. More illogical, although more safe, are regulations such as those under which the savings banks of Massachusetts keep their books, by which discount bonds must be carried at cost, but premium bonds may be charged down to par, or not, within the discretion of the bank.

1378. Market Value. Although income is the sole revenue consideration of *pure* investment, and net income return the sole basis of book value, yet, perhaps, as often as not there is the two-fold purpose to seek revenue and profit; or even if profit does not enter in, at some future time it may be desirable to convert the investment into cash. The latter is often the situation when a mercantile concern puts its surplus into bonds, or is to be dissolved. Liquidation value, or market value, therefore, may often be written to advantage with book value; but the two should not be confused. Market value, in bonds, is not the definite, predicable amount that book value is. The market value of all issues, except the very active, is very generally over-estimated in the annual report. Just as book value is the investment value, market value is the speculative value; and is to be associated with the speculative possibilities indicated in the quotations of the following chapters.

1379. When an investment is liquidated by sale, the profit or loss, which should be the difference between the book value and the true market value, will, in the case of trust funds, be credited to, or debited from the capital, and should not be accounted to affect the income; but the income thereafter is based on the new principal, and thus is affected in its proper ratio.

SCHEDULES OF AMORTIZATION AND ACCUMULATION

1380. Mr. Charles E. Sprague has published various schedules of amortization and accumulation, showing how bond accounts should be carried. To these the reader is referred for a series of models more complete than the following, which are based on Mr. Sprague's.¹

The constructive principle is from the second formula: that "the

¹ *The Accountancy of Investment*, Chas. E. Sprague, New York, 1906, p. 38 et seq.

cost of the bonds equals the principal or par value plus the premium, or minus the discount;" and that "the premium or discount of a bond . . . bought above or below par, is the present worth of an annuity of the difference of rates."¹

1381. Schedules for Bonds Bought on Basis. To cover in a brief account the entire mathematical history of a loan, suppose a 6 per cent. 4-year semi-annual bond, issued Feb. 1, 1910, and bought at a price to net $4\frac{1}{2}$ per cent.

Date	Cash Interest 6%	Net Income $4\frac{1}{2}$ %	Amortization	Book Value (cost)	Par
1910 Feb. 1				1054.40	1000.00
Aug. 1	30.00	23.70	6.30	1048.10	
1911 Feb. 1	30.00	23.60	6.40	1041.70	
Aug. 1	30.00	23.40	6.60	1035.10	
1912 Feb. 1	30.00	23.30	6.70	1028.40	
Aug. 1	30.00	23.10	6.90	1021.50	
1913 Feb. 1	30.00	23.00	7.00	1014.50	
Aug. 1	30.00	22.80	7.20	1007.30	
1914 Feb. 1	30.00	22.70	7.30	1000.00	
	<u>240.00</u>	<u>185.60</u>	<u>54.40</u>		

1382. The derivation of the tables is explained in § 1293 et seq. An interpretation might be as follows: On Aug. 1, 1912, the value of this investment will be \$1021.50. To realize without loss, this sum at least must be obtained if the bond should then be sold. Of the \$30.00 received on cashing the coupon, \$23.10 goes to the person entitled to receive the income from the investment; and the remaining \$6.90 must be laid aside in the sinking fund with the previous sums, so that at maturity the fund will wipe out the premium which was paid at purchase, but which will not be returned at maturity. As it is, the sinking fund now amounts to \$32.90; and this, added to the premium of \$21.50 which the bond is still worth, would now take care of the total premium of \$54.40.

1383. The person entitled at maturity to the capital invested in this bond is protected therefore by the amortization fund; for at any interest date the book value, which is the investment value, will, with the accumulated sums laid aside, equal the original capital. This principle, put in terms of the schedule, is: The

¹ *The Accountancy of Investment*, p. 37.

amortization fund, with the book value, is always a constant, and equal to the capital or corpus of the investment.

1384. If more than one bond of this issue were bought, the several items of cash interest, net income, amortization, and value, would simply be multiplied by the number of bonds bought. The greater the number of bonds in the account, the greater the cash error in using the two place tables.

1385. A schedule of accumulation would treat a discount bond account in exactly the same way. Suppose a 3 per cent. 4-year-semi-annual bond, issued Feb. 1, 1910, as before, at a price to net $4\frac{1}{2}$ per cent. This is worth 94.56, or exactly as much less than par as the other was worth more.

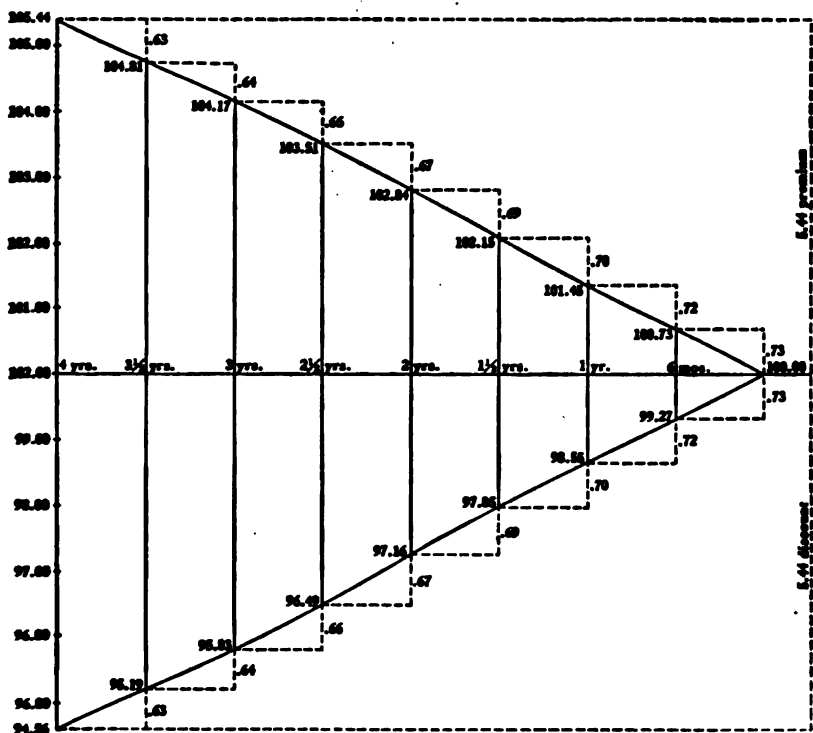
Date	Cash Interest 3%	Net Income $4\frac{1}{2}$ %	Accumulation	Book Value	Par
1910 Feb. 1			(cost)	945.60	1000.00
Aug. 1	15.00	21.30	6.30	951.90	
1911 Feb. 1	15.00	21.40	6.40	958.30	
Aug. 1	15.00	21.60	6.60	964.90	
1912 Feb. 1	15.00	21.70	6.70	971.60	
Aug. 1	15.00	21.90	6.90	978.50	
1913 Feb. 1	15.00	22.00	7.00	985.50	
Aug. 1	15.00	22.20	7.20	992.70	
1914 Feb. 1	15.00	22.30	7.30	1000.00	
	<hr/> 120.00	<hr/> 174.40	<hr/> 54.40		

1386. The investor, or bank, or insurance officer may easily carry along such a schedule by ascertaining from the tables the approximate book values each six-months' period. Or if the cost at the given basis has been correctly found to the cent (from the extended tables), he may find the net income directly from the book value of the preceding interest date, and put aside in the sinking fund the difference between the net income and the cash interest. The new book value will be the difference between the old book value and the sinking fund; whether less or more depending on whether the process is amortization or accumulation. This is because the book value must decline or advance, as the case may be, from cost to par, or the extent of the premium or discount, to wipe out the difference in four years.

1387. The principal relationships of figures in these two schedules of amortization and accumulation may be understood at a glance by a plot of the two symmetrical isorropic curves of investment value. The reason these curves are not straight lines is because of the compounding interest, which accelerates, to the extent of $2\frac{1}{2}$ per cent. each interest date, the fall in cash value of bonds bought above par, or rise in bonds bought below.

CHART II

The Curves of Investment Value



1388. Since bonds are so seldom bought on interest dates, it will be necessary to revise the schedule for ordinary use. Suppose the premium bond of the illustration had been bought on May 1, 1910. Adjustment of price by payment to the seller of three months' accrued interest works a slight injustice to the buyer, but since this injustice is not corrected in business practice, the schedule is not

altered except in the returns of the next interest period, and in the totals.

Date	Cash Interest 6%	Net Income 4½%	Amortization	Book Value	Par
1910 May 1			(cost)	1051.25	1000.00
Aug. 1	15.00 net	11.85	3.15	1048.10	
1911 Feb. 1	30.00	23.60	6.40	1041.70	
Aug. 1	30.00	23.40	6.60	1035.10	
1912 Feb. 1	30.00	23.30	6.70	1028.40	
Aug. 1	30.00	23.10	6.90	1021.50	
1913 Feb. 1	30.00	23.00	7.00	1014.50	
Aug. 1	30.00	22.80	7.20	1007.30	
1914 Feb. 1	30.00	22.70	7.30	1000.00	
	225.00	173.75	51.25		

1389. Although the cost of the bond is \$1051.25 on May 1, the bond is bought "and interest," and therefore the cash outlay May 1, is $\$1051.25 + 15.00 = \1066.25 ; but by carrying the cash interest on July 1, as 15.00 *net*, rather than at 30.00, which is actually received, the item of accrued interest need not be entered into the account.

1390. The interest dates of different bond issues fall at different times, but generally on the first day of the month. Whether on the first or any other day, or whatever the month, it will be necessary to value all holdings as of the dates the account books are closed. These dates are customarily June 30, and Dec. 31.

To achieve this result in the 4-year bond before us it should be entered as of May 1, 1910, and the book values for June 30, and Dec. 31, 1910, by the rough commercial method of proportion with the known bond table values of Aug. 1, 1910, and Feb. 1, 1911,—as follows:

Interest Date	Book Values	Interest Date	New Book Values by Proportion
1910 May 1 (cost)	1051.25	May 1 (cost)	1051.25
Aug. 1	1048.10	June 30	1049.15
		Dec. 31	1042.77
1911 Feb. 1	1041.70	June 30	1036.20
Aug. 1	1035.10	Dec. 31	1029.52

Interest Date	Book Values	Interest Due	New Book Values by Proportion
1912 Feb. 1	1028.40		
Aug. 1	1021.50	June 30	1022.65
		Dec. 31	1015.67
1913 Feb. 1	1014.50		
Aug. 1	1007.30	June 30	1008.50
		Dec. 31	1001.22
1914 Feb. 1	1000.00	Feb. 1	1000.00

1391. Having obtained June 30 and Dec. 31 book values, the schedule may be constructed as before:

Date	Cash Interest 6%	Net Income 4½%	Amortization	Book Value	Par
1910 May 1			(cost)	1051.25	1000.00
June 30	10.00	7.90	2.10	1049.15	
Dec. 31	30.00	23.62	6.38	1042.77	
1911 June 30	30.00	23.43	6.57	1036.20	
Dec. 31	30.00	23.32	6.68	1029.52	
1912 June 30	30.00	23.13	6.87	1022.65	
Dec. 31	30.00	23.02	6.98	1015.67	
1913 June 30	30.00	22.83	7.17	1008.50	
Dec. 31	30.00	22.72	7.28	1001.22	
1914 Feb. 1	5.00	3.78	1.22	1000.00	
	<u>225.00</u>	<u>173.75</u>	<u>51.25</u>		

1392. The schedules have been based on the two place tables because these are the tables in common use. The consequent inaccuracy is not great, but worth avoiding by the use of the extended tables. As previously stated, if extended tables had been used the book values would have been correct to the nearest cent, and the semi-annual income could have been correctly figured for six months at $4\frac{1}{2}$ per cent. on the investment (or book) value. By comparing the multiplicand of $2\frac{1}{2}$ per cent. of any book value with the net income of the succeeding six-months' interest period, an idea may be had of the amount of inaccuracy in this schedule. If it were not for this inaccuracy it would not be necessary to obtain book values by proportion after Dec. 31, 1910, for the semi-annual instalment

of amortization, which is the difference between the cash and the net interest, is also the difference between the investment value of the present and the preceding period.

1393. Schedules for Bonds Bought at Price and Interest. Since the whole scheme of investment accounts depends on the rate of net income as its basis, when bonds are bought at "price and interest" it is necessary to convert the price into terms of equivalent net income. For illustration take a 30-year 6 per cent. bond, bought on the interest date, Feb. 1, 1910, at 124.65. The nearest net yield at this price is 4.50 per cent. To approximate more closely would require a third decimal place for the percentage of return; and this is not only contrary to custom, but also would make the work of accounting altogether too laborious. But the true price to the customary two decimals, at a $4\frac{1}{2}$ per cent. basis of return, is 124.56. Consequently there is .09 per cent., or 90 cents, overcharge, which must be amortized during the life of the loan. If considerations of accuracy are less important than those of convenience, or when the loan is short and therefore the error is small, this 90 cents may be cared for in the first item of amortization, thus:

Date	Cash Interest 6%	Net Income $4\frac{1}{2}\%$	Amortization	Book Value	Par
			(cost)	1246.50	1000.00
1910 Feb. 1			{ .90		
Aug. 1	30.00	27.10	{ 2.00	1243.60	
1911 Feb. 1	30.00	28.00	2.00	1241.60	
Aug. 1	30.00	28.00	2.00	1239.60	etc.

1394. But if the number of bonds of this issue bought is large, or the loan long, or greater accuracy desired, the overcharge may be distributed as evenly as may be, by apportionment among all the instalments. In this issue there are 60 interest dates. A charge of 2 cents to each Aug. 1,—and 1 cent to each Feb. 1 amortization will distribute the 90 cents properly.

Date	Cash Interest 6%	Net Income $4\frac{1}{2}\%$	Amortization	Book Value	Par
1910 Feb. 1			(cost)	1246.50	1000.00
Aug. 1	30.00	27.98	2.02	1244.48	
1911 Feb. 1	30.00	27.99	2.01	1242.47	
Aug. 1	30.00	27.98	2.02	1240.45	etc.

1395. If the bond had been bought at 124.47, the nearest net yield would still have been 4.50 per cent., but the investment would have lacked just as much in price to make it yield $4\frac{1}{2}$ per cent. as it exceeded before. And so .09 per cent., or 90 cents, must be accumulated by maturity to meet the price deficit. This is done by withholding 90 cents from the first item of amortization, or by withholding an alternate 2 cents and 1 cent, as in the next preceding schedule.

Date	Cash Interest 6%	Net Income $4\frac{1}{2}$ %	Amortization	Book Value (cost)	Par
1910 Feb. 1				1244.70	1000.00
Aug. 1	30.00	28.02	1.98	1243.72	
1911 Feb. 1	30.00	28.01	1.99	1241.73	
Aug. 1	30.00	29.02	1.98	1240.75	etc.

1396. Schedules for Bonds Maturing at Other Than Regular Interest Dates. Bonds which have a date of issuance or maturity different from the regular interest dates cannot be carried on the books by a schedule derived from the bond tables. The price must first be ascertained by the six place tables, conformably to the irregular initial or terminal period, and the schedule must then be constructed by multiplication. At the irregular periods the investment value must be multiplied by the irregular net rate to find the net income for the period, and this subtracted from the irregular coupon interest will yield the amortization account for the period. The amortization sum, subtracted from the investment value, will give the succeeding value—whether that value be the first regular interest date value (for irregular initial periods) or par (for irregular terminals).

1397. Schedules for Serial Bonds. Bond issues maturing serially, or otherwise partially, are easily scheduled. The cost of the series will be the sum of the costs of each bond, or set of bonds, reckoned according to maturities. That is, the total cost will be a bill of costs on which there will be as many items as there are separate maturities. The schedule can then be carried down by multiplication, as before, until the maturity of the shortest issue. The par value plus the semi-annual coupon value of the bonds maturing will then be subtracted from the investment value and the process of interest compounding continued.

1398. Schedules for Redeemable Bonds. Schedules for redeemable bonds involve no principles not already outlined in the paragraphs

devoted to Bonds of Optional Duration. Amortization or accumulation should be carried on from half-year to half-year on the basis of that duration which was chosen to determine the cost of the given bond; for it will be remembered that cost and par are only two of the series of investment values, and duration is the only problem in optional bonds.

1399. In case, however, that a bond is not called, when according to the computation it is likely to be, it should thereafter be carried at par, as aforesaid. On the other hand, if it is called before the allotted time, the difference between the investment value, at the time, and the redemption value, should be considered profit, and credited to the capital. Any other accounting would vitiate the previously recorded investment values and be at variance with sound bookkeeping.

CHAPTER XXXVII

THE FIFTY-YEAR COURSE OF BOND PRICES

1400. A Bearing of Speculation Upon Investment Security. It may occur to some that, although a discussion of prices in relation to coupon rates and par value—such as that undertaken in the previous three chapters—is legitimate and necessary to a science of bond investment, nevertheless a discussion of prices in relation to cheapness and dearness is an exercise in speculation, and unwarranted in a book of this character.

1401. The objection is not without force. Subject to trifling but unavoidable inaccuracies we can *know* what the mathematical value of a bond is,—given the cost, duration, coupon rate, and principal,—but as to the future of bond prices, as to whether the present is a desirable time to buy or to let our funds remain comparatively idle; or whether it is a favorable time to liquidate an investment already made,—we can only surmise on the basis of experience, confident that history will repeat itself. But to surmise is to speculate.

1402. However, the so-called exact sciences are few, and even their exactness is comparative. All that can be demanded of a treatise which strives to be scientific is an adequate provision of facts, logical deductions, and a spirit of fair-mindedness in the application. All these are possible in a study of prices.

1403. Security in Liquidation. Moreover, the course and future of bond prices bears a very intimate relation to many subjects which form the very *corpus* of the science of bond investment. Most important of these subjects are Security of Principal and Security of Interest. It has been maintained that security is not merely a matter of the payment of interest and principal as they mature, for it may be found necessary to liquidate the investment before maturity. In such event, the issues that fluctuate least in selling price are most secure. This is what we mean by Security in Liquidation.

In a sense, the security for New York City bonds cannot seriously

be questioned. In 1895, New York City bonds sold on a 2 per cent. basis. For 45-year 4 per cent. bonds that is a selling price in excess of 150. New York City 4s may now be purchased below par. Was there any true security in such an investment 16 years ago? Only providing the loan is held till maturity, or sells on a 2 per cent. basis. A better illustration:—as long as this country maintains a gold standard, all American funded loans, whether gold bonds or not, are virtually payable in gold. If, as very many people believe, the value, or purchasing power, of a gold dollar will continue to decrease, indefinitely, for decades to come, as it has for more than a decade past, *no thorough study of the security for bonds can fail to consider the future of gold prices.* But any course of conduct based on this study is speculation. Thus is seen how inseparably related are investment and speculation. We are obliged to speculate to obtain the greatest possible security for our investment.

1404. Statistical Difficulties of Price Study. In discussing bond prices we face several problems. One difficulty is the limited number of issues of which there are full and reliable records of sales over a period of years. Most loans of this kind are active railroad bonds listed on the New York Stock Exchange. To them might be added the obligations of the great metropolitan cities: New York, Boston, Philadelphia, Chicago, etc., and a few prominent public service corporation bonds,—but most of the latter are listed, even if their chief market is among the bond houses.

1405. The market for the less well-known bond issues: the “specialties” of the various bond houses, may be more or may be less satisfactory than for listed bonds, but at least it does not lend itself well to statistical study. Its quotations are generally offerings, or at best “bid and asked” prices, rather than actual sale prices. For obvious reasons sales of these specialties do not find their way into print. If bid and asked prices are genuine and close enough together,—say within a point,—we have an approximate selling price to work upon; but in general, there are not a sufficient number of active issues of the kind to form the basis of statistical study. For all practical purposes, then, a study of the course of bond prices is a study of the prices of listed bonds.

1406. That price study is virtually limited to active listed bonds is a serious restriction; but although inactive bonds, listed or unlisted, are not so sensitive to price changes and are more subject, in price, to special influences, nevertheless, they *tend* to move in correspondence with active listed bonds, and therefore the causes

of the movements of active listed bonds are of interest to owners of any class of bonds.¹

1407. Another difficulty in the study of bond prices lies in the fact that loans have a maturity date. The shorter the duration of the loan is at any given date, the more restricted its opportunity for fluctuation. Let us say that 5 per cent. loans of a certain grade of security were worth $4\frac{1}{2}$ per cent. six months ago. Meanwhile money has become tighter and the same loans are worth 4.80 per cent. At these rates a 60-year bond will have declined from 110.34 to 103.92, a loss of nearly 6 per cent., while a 6-year bond will have declined from 102.60 to 101.03, a loss of only $1\frac{1}{2}$ per cent., approximately; and a six-months' bond will have declined from 100.24 to 100.10, or about 14-100 of 1 per cent. It goes without saying that the decline probably will not be at the same rate for the three loans; but the fact remains that in discussing fluctuations in bond prices, maturity must not be lost sight of.

1408. Therefore, in tracing the course of bond prices, best results will be obtained by recording only loans with long life, for the price index will be more sensitive to the current value of money. If, however, the study is to extend over a range of more than 50 years, the mere duration of the bonds (to say nothing of other reasons) will require the substitution of new issues as the old begin to lose their sensitiveness to change in current rates because of the approach of maturity.

1409. There is a duration,—and perhaps it lies around 50 years,—which is so long that the influence of maturity on the basis of yield becomes almost negligible. A 20-year 5 per cent. bond on a $4\frac{1}{2}$ per cent. basis costs 106.55. A 60-year bond under the same conditions costs 110.34, as we have seen. This 40-year difference in age is a difference of 3.97 points in cost. A 100-year 5 per cent. bond on a $4\frac{1}{2}$ per cent. bond basis costs 110.98; i.e. a 40-years' additional age results in only .64 of a point additional cost. Therefore, if the bonds chosen for study have 50 years' life, or thereabouts, mathematical influences have been properly checked.

¹ To relate, in a very crude fashion, the course of municipal bond prices with the prices of listed railroad bonds, it may be said that, taking the average price of both classes in 1900 as parity, the index number of railroad bonds in 1895 was about 86 and of the municipal bonds of Boston, Philadelphia, and Baltimore was 98. In other words, railroad bonds advanced about 14 points and municipals about 7. The prices of the municipals were those the several cities would have obtained if all the issues had been 30-year 8½s.

1410. There is one more way to safeguard deductions, and that is to choose issues which, during the range of the study, fluctuate about parity as an average price. Investors are loath to buy at an extreme discount or premium,—especially at a premium. Other things being equal, a 60-year $4\frac{1}{2}$ per cent. bond at par is more attractive than a 60-year 4 per cent. bond at 89.66, or a 5 per cent. bond at 110.34, although all three net, theoretically, $4\frac{1}{2}$ per cent. on the investment, if held till maturity.

1411. *The Subjects of Price Study.* Limiting these observations now to active listed bonds of long life, that do not range at too great premium or discount, the following phenomena of price changes suggest themselves as worthy of study:

1. Price changes due to the development of national resources, both physical and financial.
2. Price changes due to the course of the trade cycle, and in general to the condition of credit.
3. The future of bond prices as indicated by past and present price tendencies.

THE DEVELOPMENT OF NATIONAL RESOURCES

1412. Such a vast and comprehensive matter as the development of national resources can merely be touched on here; and it will be idle to carry the study back much further than the time of the Civil War, for railroading, and railroad prices with which the index of our national resources must be compared, were not on a sufficiently stable footing before the fifties to make justifiable comparison. As for municipal bonds,—and any casual study of prices that might be made from them,—it would not be necessary to go back earlier than the sixties, for the phenomena that were the causes and results of the First Repudiation Period were sufficiently like those of the Second Period.

1413. Among the many evidences of the growth and development of this country during the past half century one may consider the records of population, production, distribution, total business transactions, and the estimated national wealth. The bearing of these records upon the price of American bonds will be so obvious and general that the simplest presentation of the facts will suffice. For the purpose a diagrammatical scheme has been chosen as illustrating most clearly and vividly the changes in conditions over a long period of time.

1414. A distinct advantage of attacking from charts the problems of price movement is that one minimizes thereby the temptation to make the facts fit the theory, rather than the theory, the facts; and equally important, the charts are a very effective check on sweeping generalizations that are as hard to disprove as to substantiate.

The development of national resources may be divided roughly into its material and financial aspects. We present, therefore,

1. Charts of population and production,
2. Charts of the volume of business and resulting wealth,
3. Charts of resulting security prices.

1415. **The Charts of Population and Production.** Increase in population is antecedent and fundamental to all other phases of national growth. There must first be hewers of wood and tillers of soil, and diggers of mines before crops and metals are at our disposal.

From the strictly investment point of view, the truth is equally obvious. New lines of railroad, for which money must be borrowed, are almost invariably projected into sparsely peopled sections. Their earnings, and therefore the safety of their securities as channels of investment, depend on future settlers and the traffic these settlers will create and induce. To mention but a few, the Frisco, the Atchison, and the Missouri Pacific, in the Southwest, and the St. Paul and the two Hill roads in the Northwest still face the elemental problem of colonization in furtherance of future truly profitable and secure transportation business. The New York Central proper has no such problem, and therefore no such future.

1416. Growth in population is equally the reliance of industrial and of public service corporations. It is hardly conceivable that any business enterprise of sufficient importance to issue funded obligations, will not be able to safeguard its creditors more fully as the country increases in population.

1417. There is no growth more steady and dependable than that of population in the United States. Although the figures for the country at large are taken only once each decade, and therefore the line of population could change direction with accuracy only once in ten years, this line is for our purpose a fair index of the facts. Immigration, to be sure, varies markedly according to the prosperity of the country, but those who seek the unearned increment to property values, or to the margin of safety in investments, have never yet relied in vain upon a substantial growth in popula-

CHART III

POPULATION

U. S. Total Population

June

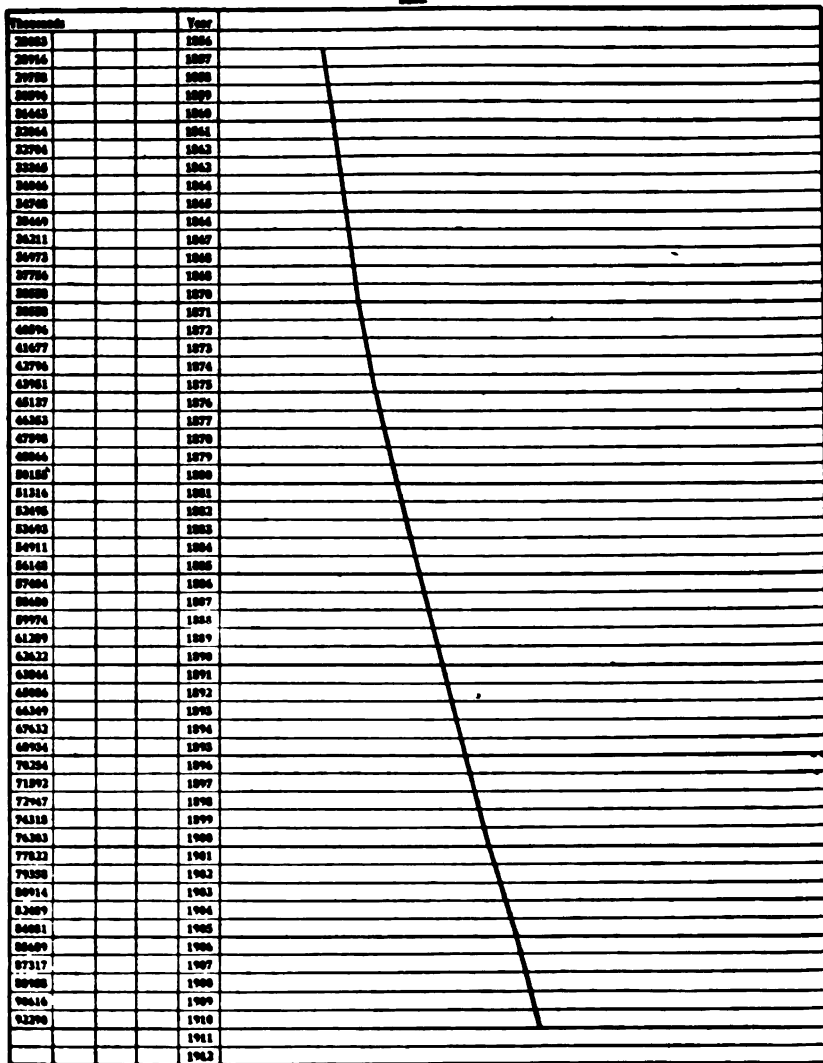


CHART IV

COTTON

(U. S. Cotton Production (Thousands of Bales)

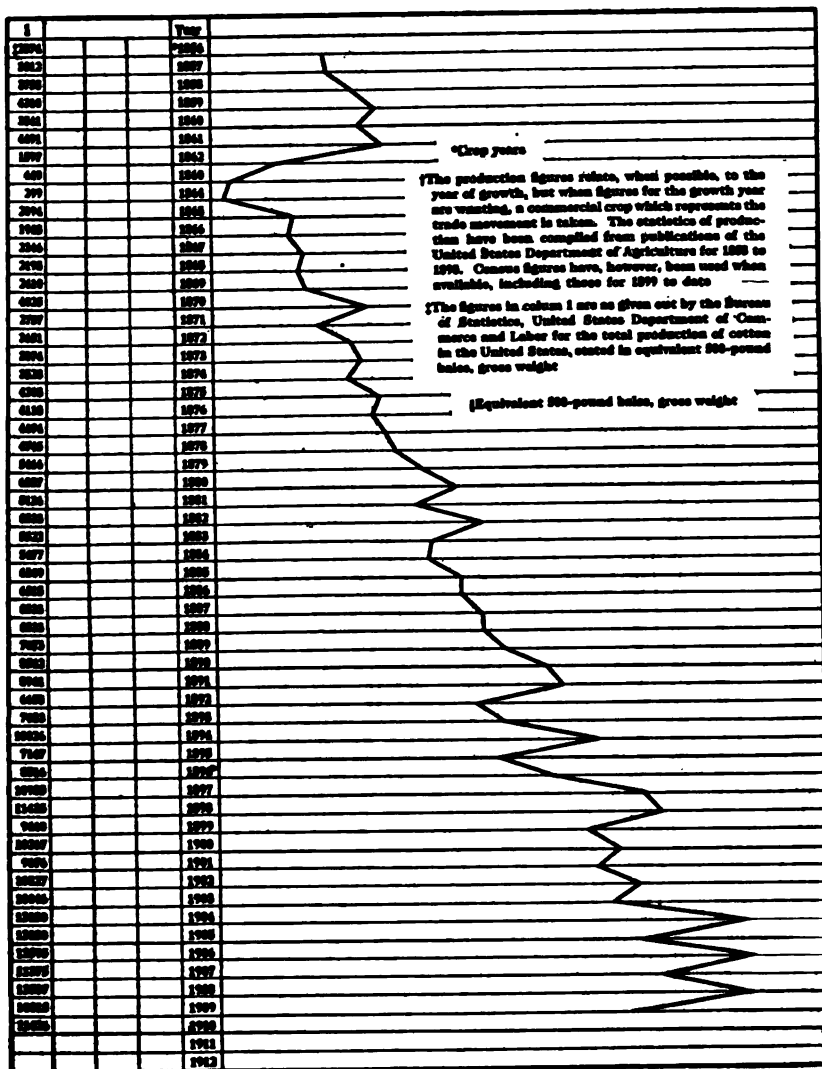
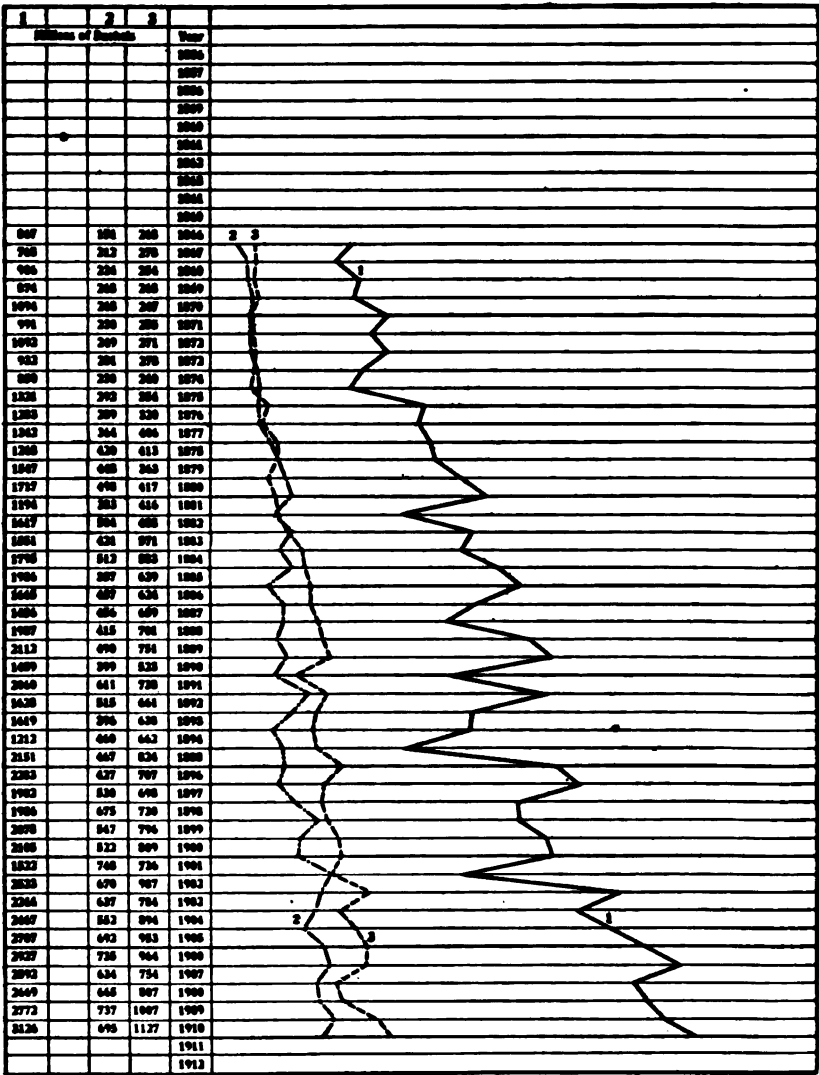


CHART V

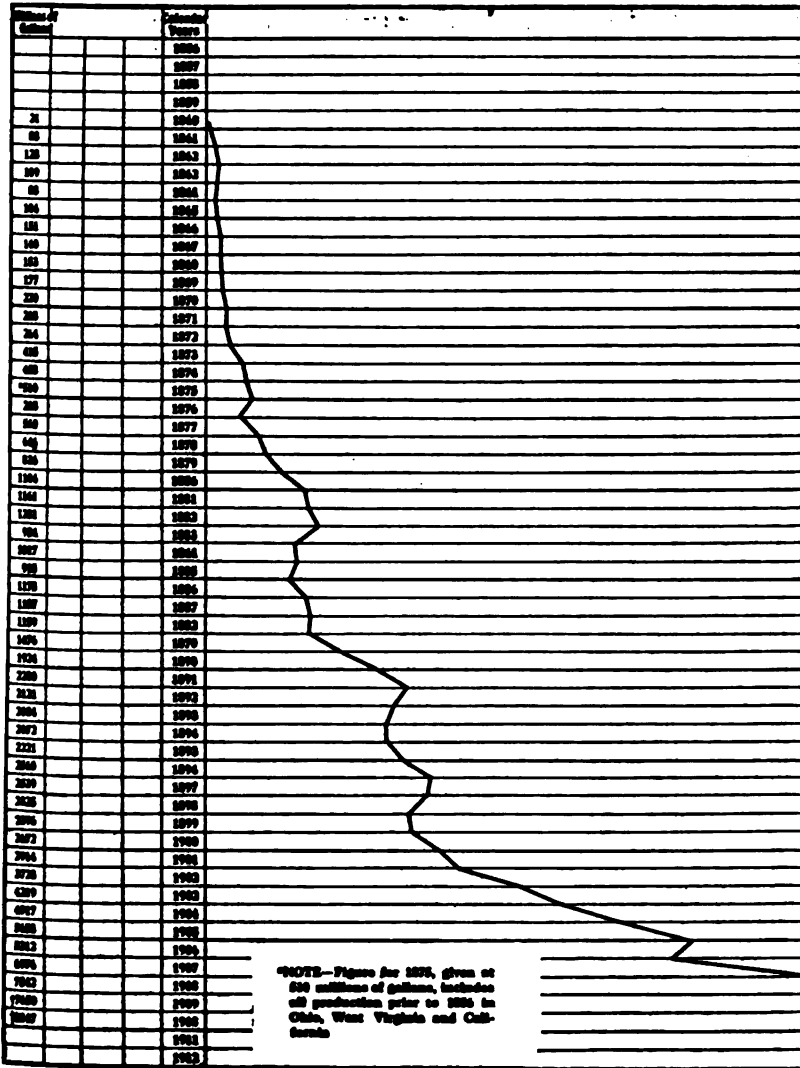
CROPS

- 1. U. S. Production of Oats
- 2. U. S. Production of Wheat
- 3. U. S. Production of Corn



continued from page 459

CHART VI
PETROLEUM
U. S. Petroleum Production



Approximate

Source: U.S. Bureau of Census

CHART VII

COAL

U. S. Production of Coal

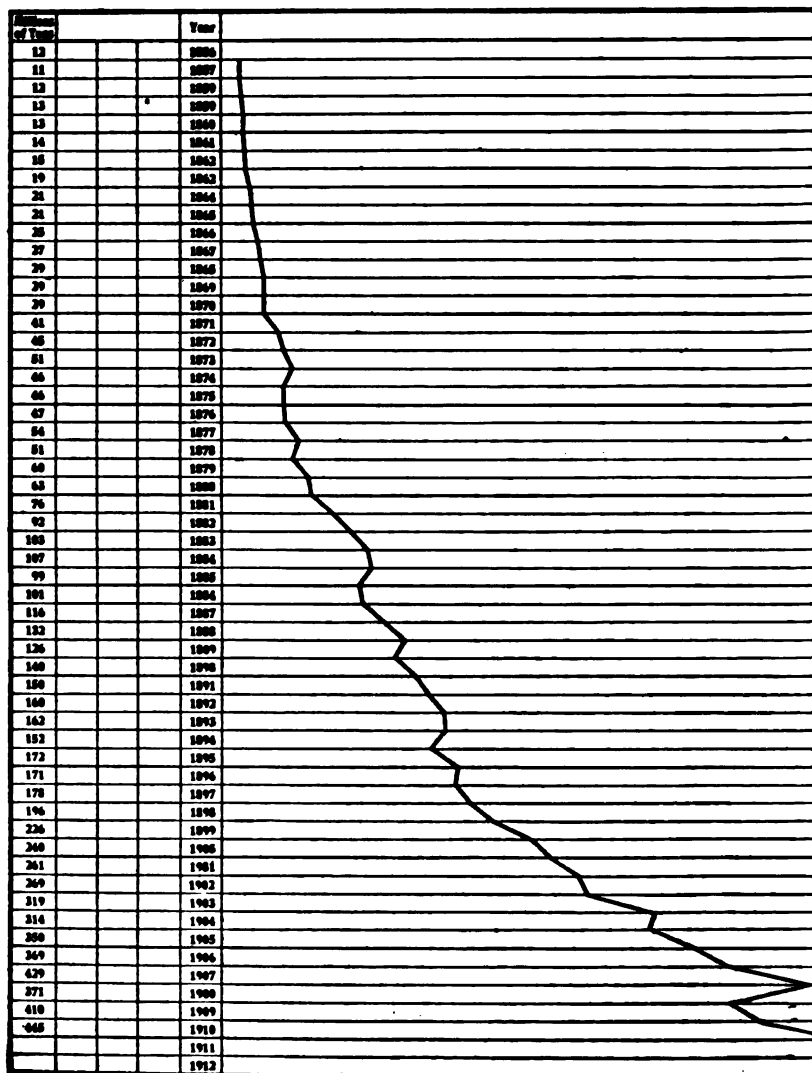


CHART VIII

IRON AND STEEL

1. U. S. Production of Pig Iron
2. U. S. Production of Steel

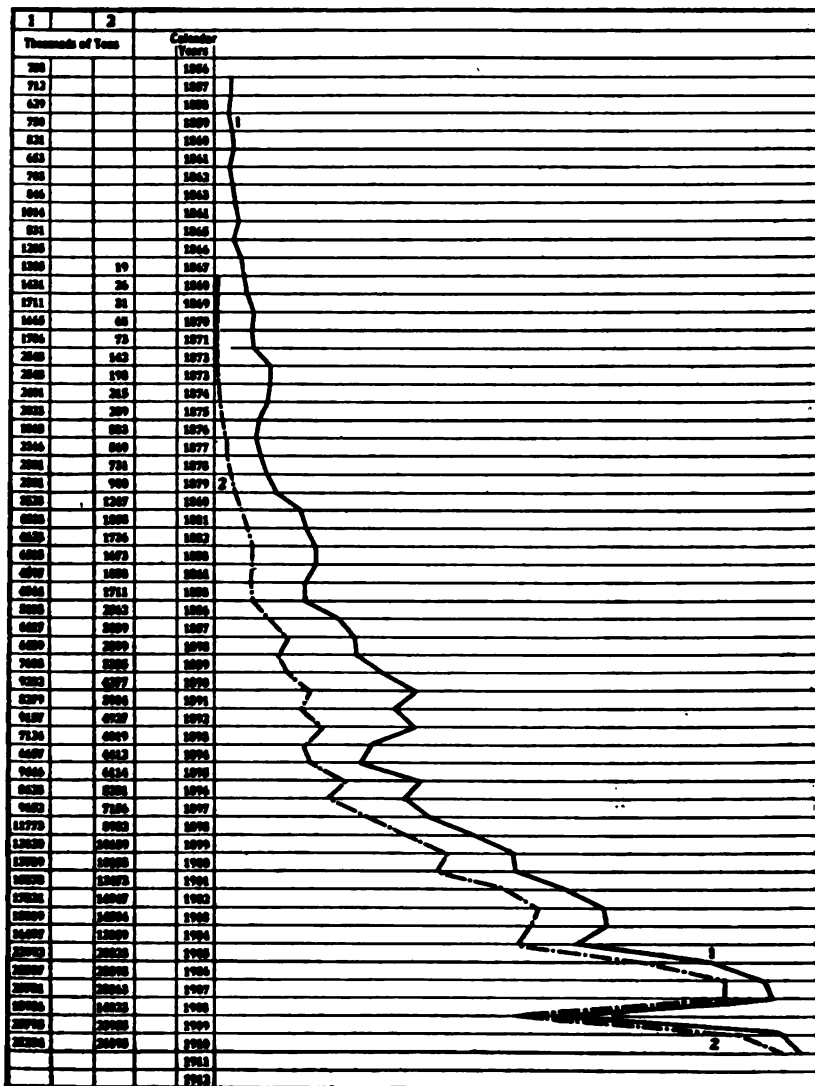
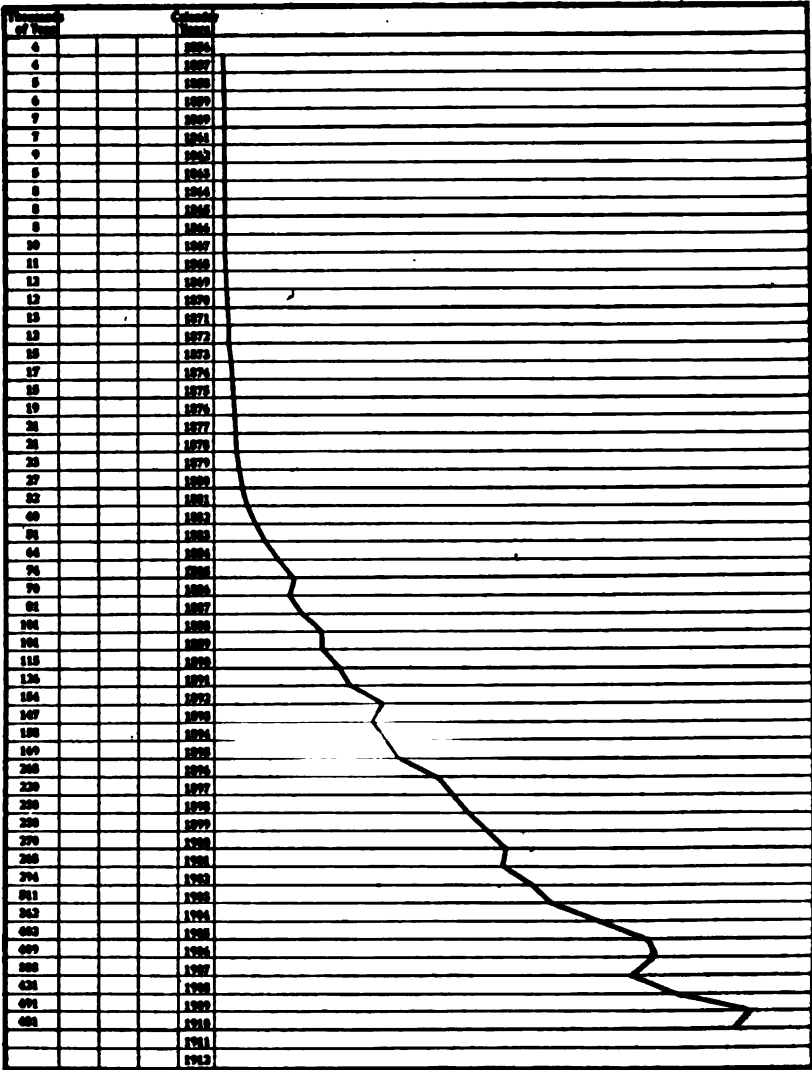


CHART IX

COPPER

U. S. Production



AMERICAN CUPPER CO., N.Y.

tion from decade to decade, or from one revolution of the trade cycle to the next.

1418. The lines for crops and minerals on these charts picture the growth in production of the more important commodities,—all thoroughly representative of their kind. Since cotton must be expressed in bales, and corn, wheat and oats in bushels, it is not possible to put the graphs of all four crops in one chart. For a similar reason, petroleum must be separate from coal and the metals. Although the outputs of coal, of iron, of steel, and of copper, are all expressed in weight, the quantities mined of each are so different, that only steel and iron can express on the same diagram their relative outputs. It will be observed that quantitative variation is expressed in these charts by distance from left to right, rather than, as often, from a base line upward and downward.

1419. Increased production means increased traffic and transportation facilities, increased demand for machinery, power, labor, skill, wages, and money and other instruments of credit. Increased production means the necessity of standardization in grades and quantities of manufacture, in hours and terms of employment, in all contracts for future delivery, in the creation and security of funded loans with which to finance industry.

Other things being equal, a gain in the elements of security enhances the value or price of bonds, and therefore the rapid increase of population and annual production, indicated by the charts, creates a tendency toward higher bond prices.

1420. The Charts of Business and Per Capita Wealth. Out of the fulness of statistical material it is difficult to choose the three or four most significant manifestations of the country's growth in the volume of wealth distributed (physically speaking) to relate to the growth of individual wealth, and therefore to appreciation in security values.

1421. The absolute and the relative volumes of the movements of goods to and from the United States, express satisfactorily the foreign trade. For our purpose these volumes are most expressive in terms of value. It is seen that the growth of foreign trade has kept pace with the growth in production. Equally important, since 1875 the balance of trade has been continuously in our favor (with two trivial exceptions), although prior to 1875, it was equally true that imports exceeded exports.

CHART X

IMPORTS AND EXPORTS

1. U. S. Merchandise Exports
2. U. S. Merchandise Imports

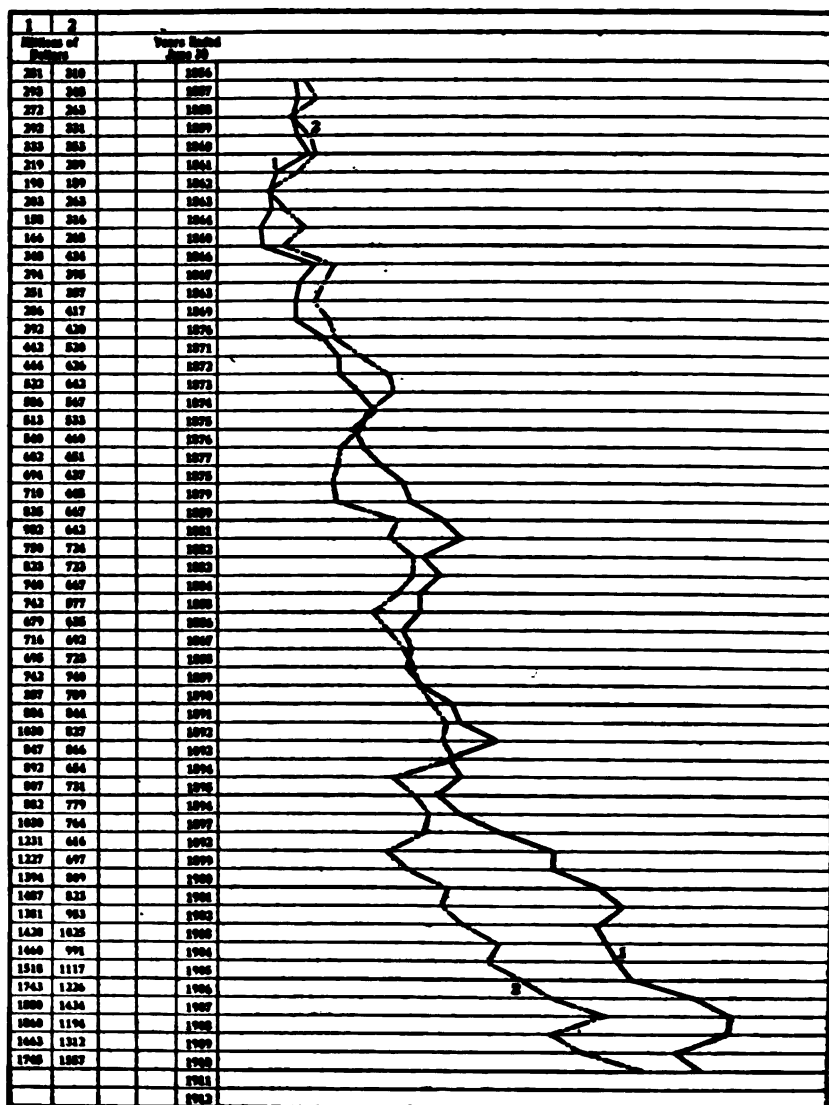
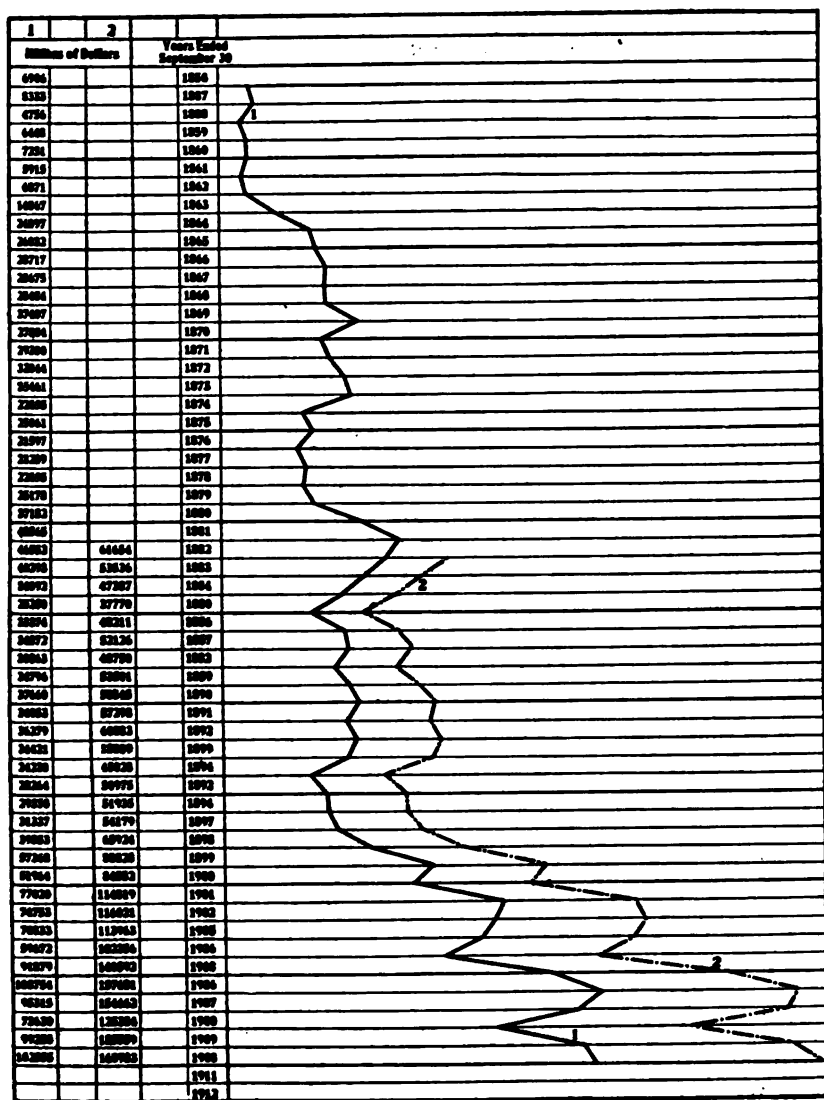


CHART XI

BANKS

1. N. Y. Clearings
2. U. S. Clearings



The resulting annual credit balance, which has averaged nearly \$500,000,000 for the past 10 years, serves to offset,—at least in part,—the so-called “extra-trade” debit incurred by Americans sojourning abroad, and incurred by importation and exportation in foreign vessels, and by the tribute to foreign capital of insurance premiums and security dividends and interest. In postponing to an indefinite future a debit balance from the shipment of gold to and fro, the trade balance in our favor has helped to make possible the increase in per capita circulation within the United States.

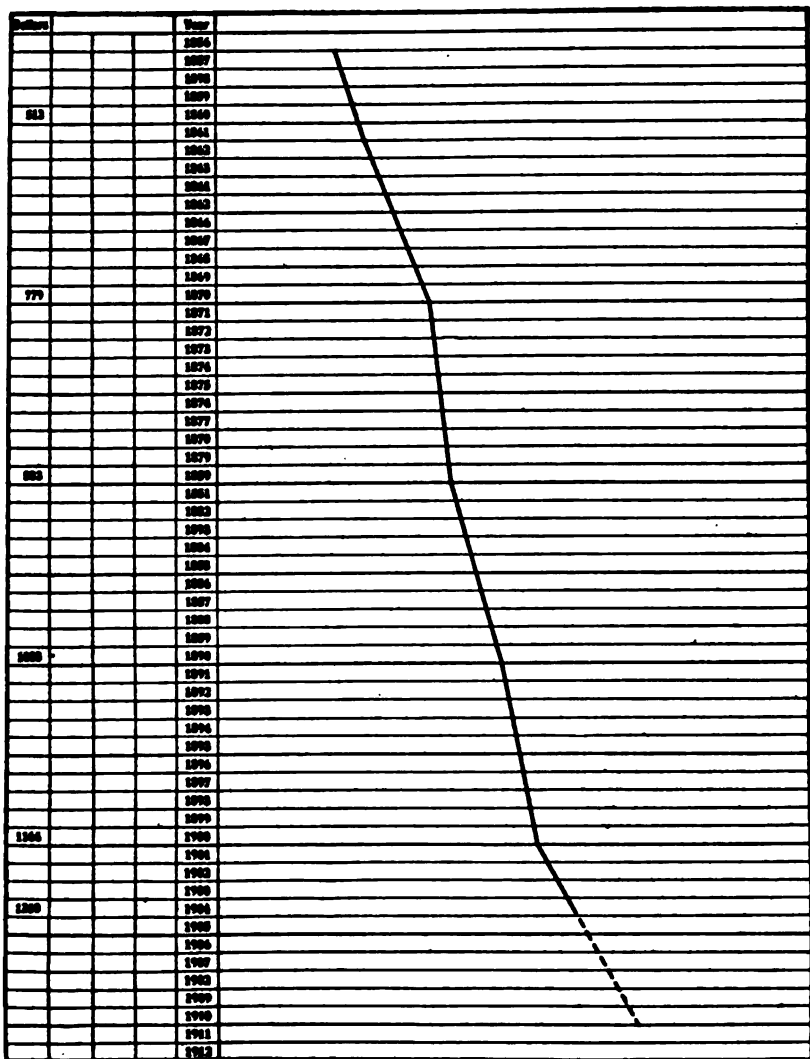
1422. In 1856 this circulation was \$15.16. During the years of debit trade balances this circulation never rose higher than \$20.57 and then only in the inflation of the war times. But from a low mark of \$15.32 in 1878 it has advanced with only a single noteworthy recession (during the mid-nineties) to \$35.01 in 1909, and by thus helping to lessen what would otherwise have been the demand for money, it has tended to increase bond prices.

1423. The line of bank clearings is more comprehensive in its reference to industrial growth than the line of foreign trade. It represents the total exchanges of bank credit through the clearing houses of the entire country, and graphically portrays the volume of business; for in the opinion of the Comptroller of the Currency, nearly 90 per cent. of all business in the United States is now transacted by checks. The relation of the volume of clearings to bond prices is not direct but collateral, and the volume affects the trade cycle movement of bonds as much as it does the trend of prices over the decades; but because of the comprehensiveness of bank clearings as an expression of the country's business development, it is well to include the graph. Unfortunately figures are available only for years since 1881. Therefore clearings at New York have been added to give a better idea of the 50-year trend.

1424. The line of increase in wealth for each inhabitant, like the line of population, is made possible by the Federal census, and until the beginning of this century could be corrected only once each decade; but the special census report of 1904 gives new direction from 1900.

The growth of both crop and mineral production, with the resulting increased business, evidenced by foreign trade and bank clearings, is sufficient testimony to the growth of the United States in wealth. Since the population has increased substantially also, it may not be so clear that individual wealth has achieved a purchasing power of sufficient importance to create a *per capita* invest-

CHART XII
WEALTH
U. S. Wealth per Capita



ment demand which would affect bond prices. The graph of per capita wealth, however, speaks for itself.

1425. We may rightly, then, picture the great rise in bond and stock prices as assisted from below, so to speak, by support of intrinsic merit and from above by the increasing demand of surplus wealth.

1426. One must not forget the decreased value of a dollar; and a correction due to the fact is necessary for the past 13 years in studying all charts having to do with prices and money. Still it is this unprecedented per capita wealth which vests the ownership of the United States Steel Corporation in 95,000 men and women,¹ and that of the Pennsylvania Railroad in 60,000, and makes reasonable the estimate that 5,000,000 people in the United States are proprietors of corporate undertakings. The generality of financial power and intelligence which these figures imply has had much to do with the 50-year uplift in bond prices.

1427. The increase in per capita wealth signifies an investment buying power of which few, except those in the bond business, or in the security selling business in general, have any adequate idea. Europe,—particularly France,—is still absorbing annually an immense volume of our bonds, but not immense as compared with America. No Barings of London, nor Hopes of Amsterdam, are now paternally protective to the market prices of our civil and railroad loans. Even our own banking and insurance institutions are gradually giving way in importance, as they long since did in France, to the much-talked-of private investor. The increase of per capita wealth and the beginnings of a general spirit of investment have caused the rise of the American bond house.

1428. There are any number of statistical graphs which might be added to these to show the physical and financial development of the country during the past half century:—such as the Stock of Gold Money in the United States, and Railroad Gross Earnings, which is an index of the volume of goods going to market, etc., etc., but the lines we have are sufficient to make obvious the connection with bond and stock prices.

1429. The Charts of Security Prices. The charts of security prices must be used with caution. Owing to the wider fluctuations of shares the stock chart is drawn to a different horizontal scale. One's first impression is that the net advance of bonds from 1856

¹ According to the books of the Company. This does not include certain foreign holdings deposited with syndicates.

CHART XIII

BOND PRICES

1. Trend of 10 Characteristic Railroad Bonds
2. Trend of 4 Characteristic Railroad Bonds
3. Trend of 4 Bonds in Terms of Gold

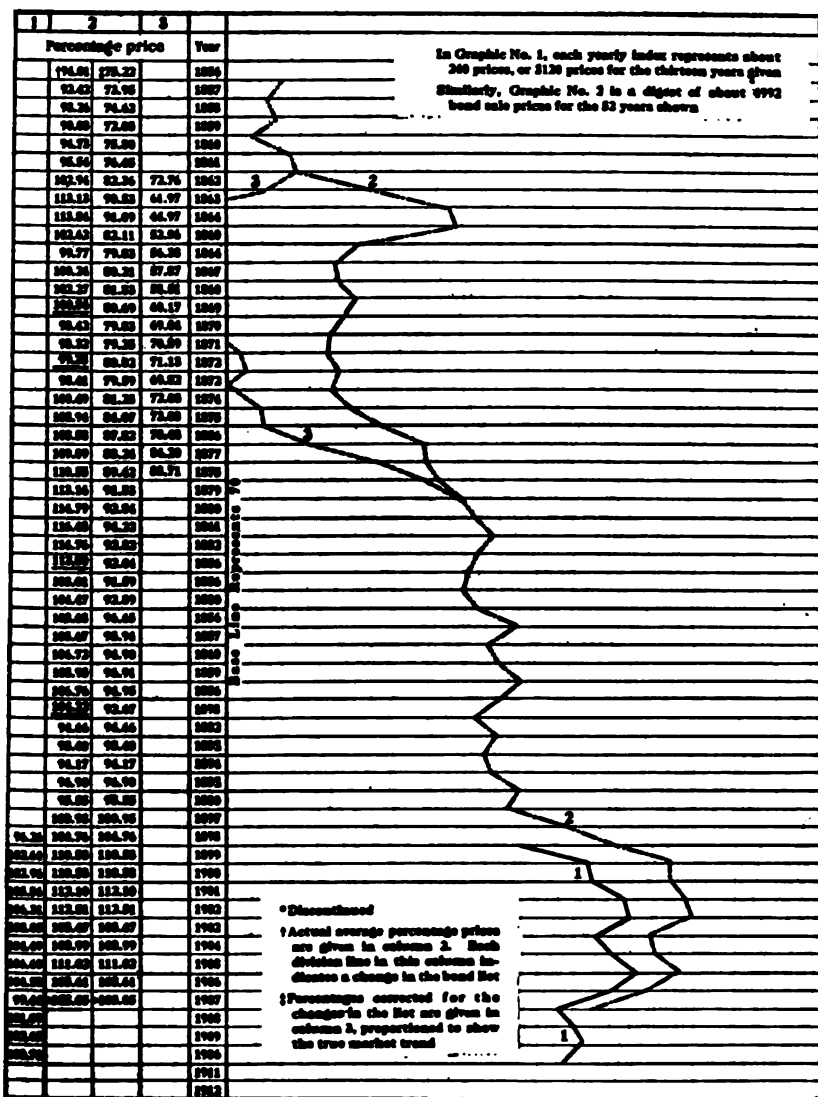
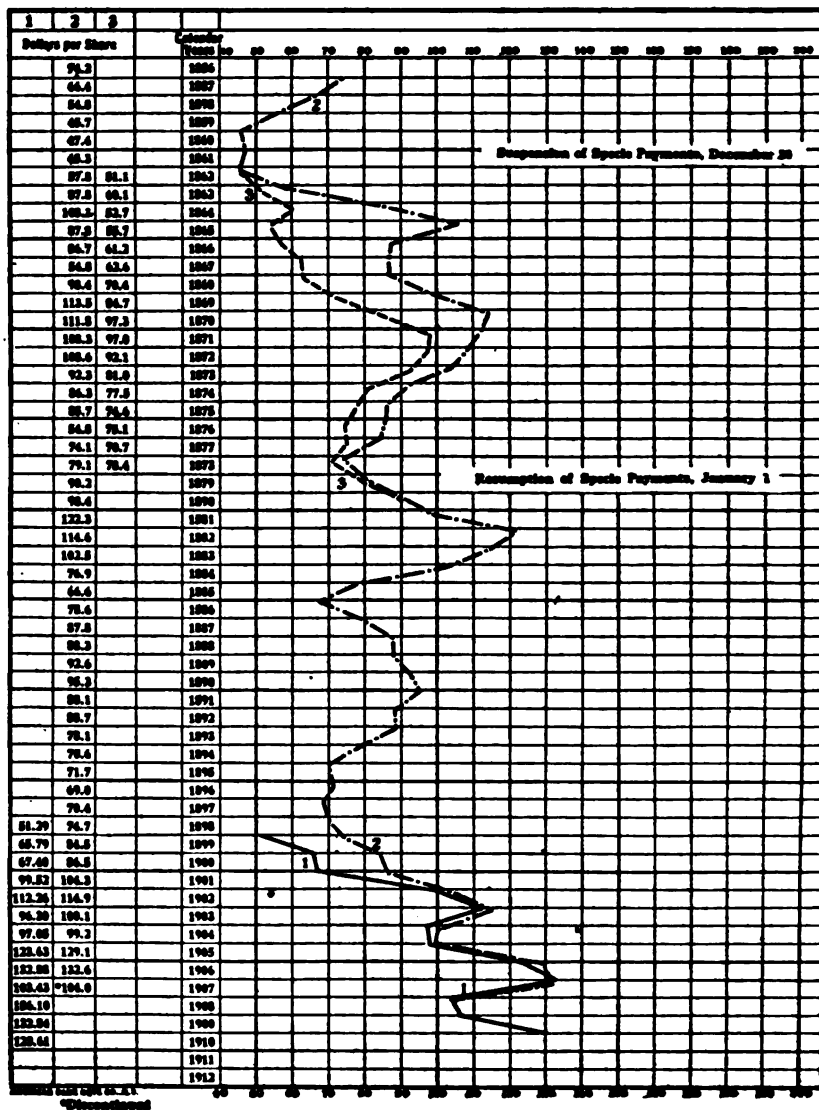


CHART XIV

STOCK PRICES

1. Trend of 10 Characteristic Railroad Stocks
2. Trend of 4 Characteristic Railroad Stocks
3. Trend of 4 Stocks in Terms of Gold



to the present has been greater than that of stocks. As a matter of fact the reverse is the case. Bonds have advanced from 75.22 (with price corrected on the basis of the most recently used four bond issues) to 103.05 in 1907, and stocks from 74.2 to 104.0 in 1907 where the four-security table ends.

The lines of 10 securities, in both charts, beginning in 1898, succeed the lines of four securities, in order to make the graphs more comprehensive. The 10 issues that form the solid line of bond prices are named in § 1470.

1430. It is to be regretted that space does not permit a careful study of these two 50-year charts in relation to each other. We shall have something to say of them in the succeeding chapter. Here it is enough to invite comparison of the chart of bond prices during the past 50 years with the charts that have preceded. It would be merely confusing to point out similarities and differences. Some may choose to work out their deductions from the figures in the columns, reducing progress to percentage; for most it will be sufficient to visualize the course of slow growth through many years, from small beginnings, and then the almost abrupt advance toward present prosperity which began about 1896. It will be evident to all that conditions of population, production, exchange, and the like have been the influences that have given direction to the 50-year trend of stock and bond prices. Let us, then, in the next study, turn the magnifying glass on the course of security prices, to see what may cause the minor movements of bond prices, and how important these movements are.

CHAPTER XXXVIII

BOND PRICES IN RELATION TO THE TRADE CYCLES

1431. The great advance in bond prices over a period of half a century or more has been a matter of historic interest, and certain fundamental, but rather obvious truths have been developed from it. This advance cannot continue indefinitely, if for no other reason than because of the low return which bonds yielded at the high prices of 1902 and 1905. As the price is indefinitely raised the net yield approaches zero for its limit, just as in geometry the hyperbola approaches the asymptote. In 1902 the net return on the average prices of the ten bonds in Chart XIII, line 1, was 3.87 per cent.

1432. But, though we cannot count very much if any longer on a general trend toward higher prices, still we may increase the safety of an investment, and at the same time assure ourselves of a reasonable likelihood of speculative profit, by buying bonds during the recurring price recessions due to the revolutions of the trade cycle.

The first, or 50-year upward movement of bonds, already culminated, has been seen to rest upon the general physical and financial condition of the country. It remains to note the causes of the equally marked secondary movement.

1433. The 15-Year Charts. Before taking them up, however, a word is necessary concerning the nature of the charts of this chapter, which are different from those used heretofore. The 15-year charts are adapted from the charts of the Financial Graphic Co. of New York, whose interest and scholarly assistance have been invaluable. Each horizontal line represents a quarter year, instead of a year, and the column figures divide the quarters into months.

"In following the general trend of financial business movements, experience has taught that averages over *too short a period* or *too long a period* are equally misleading. On the former basis the ceaseless waves, though only on the surface, may entirely disguise the steady influx or efflux of the financial tide, while on the latter basis more or less of the tidal movement itself may be averaged away against its own counter-movement. From month to month has been found the most practical period

for the comparison of trends which may take several months to show definite tendency or change, and many months or even years to run their full course. On this basis the smaller superficial movements are averaged away, leaving the general movements clearly defined."¹

1434. The graphs of the charts in this chapter, and the figures that project them, do not indicate the variation from some arbitrary base of thousands of tons, or millions of bushels, as in the previous and in the succeeding chapter, but in each case they show the degree of variation from a 10-year average taken as parity. "Although temporary phases of related subjects may be at variance, over a 10-year period, their fundamental relations must obtain."

Therefore, the monthly numbers representing security prices in the columns at the sides are not the average prices of 10 railroad bonds or stocks for the given month, but they are the "Relative Index Numbers," showing the percentage relation of those monthly average prices to the 10-year average which is the base line, or parity. It is difficult to compare the variations of tons with those of bushels; but percentages are always comparable.

1435. A comparison of the courses of stock prices and bond prices over the past 15 years (Chart XV) shows us several things of interest in connection with these movements.

1. The movements are nearly coextensive in time.
2. But when not coextensive, the movement in bonds anticipates the movement in stocks.
3. In both cases price-depression is usually brief and acute, but price elevation is prolonged, and, especially in the case of bonds, the change to the downward trend is very gradual.
4. The range of stock fluctuation is several times that of bonds.
5. Over the past 10 years the trend of stocks has been slightly upward, but of bonds, slightly downward.

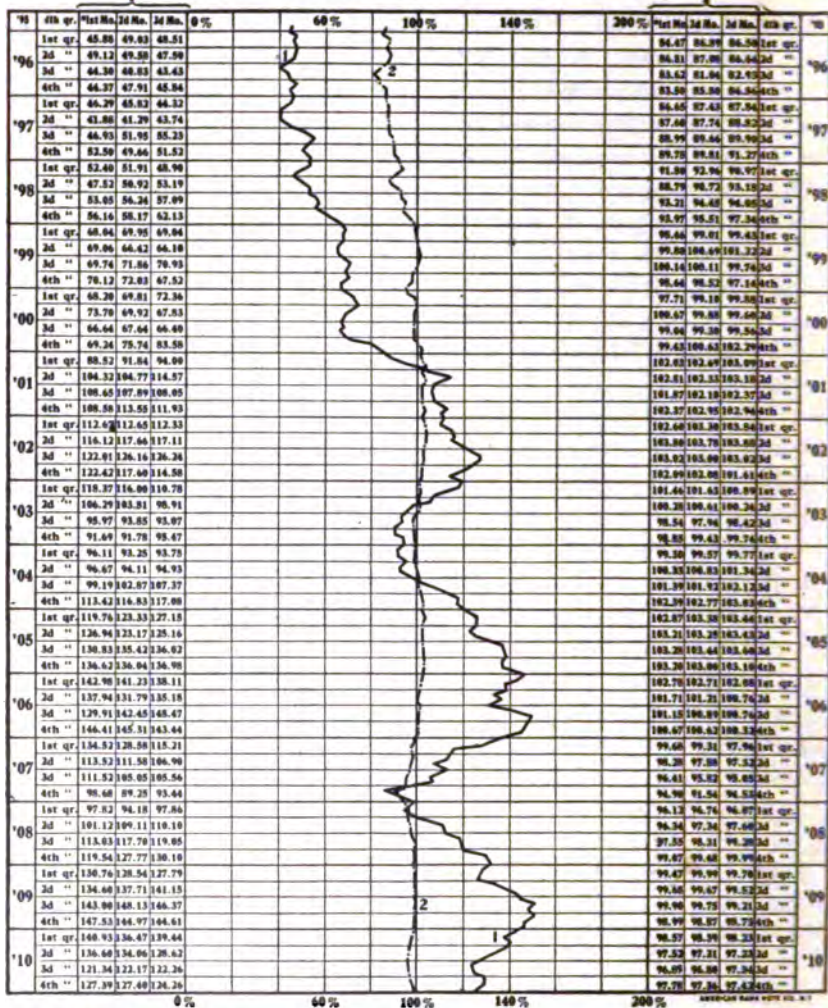
1436. **Approximate Synchronism of the Stock and Bond Price Movements.** The fact that, in a general way, bonds advance or decline with stocks suggests the feasibility of "playing the panics," if one is so circumstanced that this is possible. Most institutions, of course, and trustees, and persons unfamiliar with business conditions, cannot avail themselves of the speculative opportunities and responsibilities which recurring panics present. But others,—the small minority,—who are not restricted by law, or their own limitations, need have no difficulty in deciding when to buy. A panic needs no label on its arrival. Synchronism in the movements of se-

¹ The Financial Graphic Company.

478 BOND PRICES IN RELATION TO THE TRADE CYCLES

CHART XV

1. Railroad Stock Prices—Relative Index Numbers (Average 1890-1899=100 Per Cent.)
2. Railroad Bond Prices—Relative Index Numbers (Average 1875-1907=100 Per Cent.)



*Periods included in weeks ended Friday during each October month.

A Composite of Charts that are copyright, 1910, by the Financial Graphic Co.

curity prices helps us to obtain that investment quality we have spoken of as "security in liquidation."

1437. That bond and stock price movements are almost synchronous suggests that the same conditions are operative upon them both, and that these conditions are general in character. Therefore, we may conclude that in considering the future of bond prices in their secondary movements, we shall have to deal with much the same phenomena as we do in dealing with the round of business conditions. The man who has sufficient wisdom and foresight to know when to overstock his granaries or warehouses for the demand which is to come, and when to curtail his credits and reduce his stock and output, is competent, after some study of the differentials, to gage the proper time at which to buy and sell his active bonds.

1438. It will be noted that prior to the new century prices had not swung into that almost rhythmic movement which, graphically indicated by the three "scallops" since 1900, is a manifestation of the recurring trade cycles. In the irregular advance of both stock and bond prices in the late '90s we find little that is pertinent to the present discussion. The West had not become sufficiently settled and developed for periodic recurrence of credit evolutions.

But in the second quarter of 1902 there set in a decline in bonds which continued without reaction until the "rich man's panic" of 1903. Stock prices, however, kept on advancing until into the third quarter of 1902. The recovery of bond prices from this panic was immediate, but stock prices held at bottom for about eight months.

1439. The advance in bonds from the panic of 1903 culminated in the third quarter of 1905, but the first serious slump in stocks did not occur until about the beginning of 1906. There was a sharp recovery in stocks during the summer of 1906, but bonds continued their downward course until the November panic of 1907, and in so doing, served notice that liquidation in stocks was probably imminent. As in 1903, immediately after the panic, bonds recovered the worst of their loss much more quickly than did stocks.

Bond prices, then, anticipate stock prices in substantial recovery after a crisis, and in reversal of trend during prosperity.

1440. The history of 1905 and 1906 is being repeated now.¹ There has been no advance in listed bond prices since the latter part of 1908, and in the summer of 1909 the trend turned decidedly downward. Stocks followed the bond trend a little later.

¹The autumn of 1910.

1441. It is commonly held that the stock market is the primary index of forthcoming business conditions, but still more truly is the listed bond market anticipatory. Not only do bond movements tend to anticipate stock movements from season to season, but the priority is somewhat noticeable in the larger movements of stocks and bonds, the trend of which is ascertained by averaging stock and bond prices year by year. One can observe this by comparing the respective lines on the chart of 50-year security prices.

1442. **The Business Cycle.** The explanation of the priority is bound up in the whole principle of the secondary price movement, or the business cycle, which is presented here as briefly as possible.

There is no reason, apart from the poor judgment and lack of foresight of mankind why we should suffer from the perennial extremes of prosperity and adversity. The root of it all is not inherent in the physical or business world. Crops may fail us and become a tributary cause, unsound currency or banking legislation may accelerate a collapse of credit, but neither crops nor currency of themselves, alone, have produced a drastic, country-wide liquidation. This can happen only when it is necessary to liquidate capital as a whole.

1443. The ultimate cause of the trade cycle is over-speculation. Speculation is not, of course, a special business. It is almost as native to the race as breathing. When strawberries are three boxes the quarter, and a cool spring has reduced the price of suits, the consumer buys more than enough for present requirements; he anticipates the needs of to-morrow and next summer.

1444. The business cycle may be said to have its beginning after a crisis. When the storm broke, all who could fled to cover. Depositors withdrew their funds; the banks recalled their demand loans, and thus eliminated other deposits which were based on the credit of these loans; operators in real estate and securities, who were unprotected with wide equities, were forced to sell to those with ample capital; also manufacturers and middlemen who were overstocked in anticipation of an increasing demand at higher prices. In all quarters speculative profits and other more substantial wealth were parted with for what they would bring to save a modest remnant from like disaster. And so there was a great shifting of wealth from the weak and improvident many to the strong and prescient few.

1445. Now as the business cycle begins anew there comes, in the slow and dispiriting process of recovery, an economic regeneration.

The country is in its best condition of credit. Capital is once more in stable equilibrium. Feebly supported enterprises have already gone down and new enterprises are not yet undertaken. The householder retrenches; the merchant sells his stock and makes few replacements; the manufacturer runs his mill on part time, with a reduced force, working at lower wages. The efficient workmen are retained and the less productive are eliminated.

1446. On all sides, people are earning less and spending less. But there is this difference between their surplus now and their surplus before the panic: what they have now they keep in practically liquid state, or it is invested strictly; it is not sunk into speculative ventures simply on the promise of future returns. Fear and uncertainty have chilled the speculative fever and driven the lifeblood of money and credit nourishing new enterprises back to the heart of the great financial body, the banking center.

1447. Funds now begin to accumulate at the banks in embarrassing amounts; and the banks in turn are obliged to find outlets for the employment of these deposits that they may pay interest on them. The situation of the banks is also the situation that confronts most moneyed men, institutions, and corporations. The great jobbers have withdrawn from the mills their orders for new goods, and they will not renew these orders until they have marketed their present stock. Meanwhile their idle funds are put into loans. Everybody likes to get the "feel" of his money.

1448. Naturally, the first interest to revive under the stimulus of idle funds is the investment interest. Stocks, to be sure, have an immediate rebound, after the panic—in fact usually in the afternoon of the panic day—but this is purely the result of the mechanism of the exchange. A study of prices will show that in proportion to the decline, the early recovery of bonds is much greater. By a glance at the chart it will be seen that early in January, 1908, listed railroad bonds at New York had recovered one-half of all they had lost during the preceding year culminating in the crisis of November; but during that same period of revival, from November to January, stocks recovered only one-fifth of their loss.

1449. As long as the investment demand predominates over the speculative demand bonds will continue to rise in price, although the advance may be checked from time to time by too liberal offers of new securities. But eventually the business world will recover, by its saving, from the financial *débâcle* of the crisis, and take courage to launch new enterprises and to assume risks. Then cash

deposits in banks will tend to fall off, and the banks will be called upon to make loans to customers, who for some time past have been their heavy creditors. But these loans, in part, will be credited to the customers as deposits and will have a purchasing power equivalent to a like amount of gold. Banks which first feel the drain of commercial demand will borrow of other institutions for a time, in order to meet their need for funds; but as the securities they bought after the panic appreciate, and thus decrease the net income on current selling prices, and as the rate of interest they can command on commercial paper loans increases, there comes a time that banks begin to sell securities to strengthen reserves.

1450. Soon after this period in the trade cycle, when business resumes a normal condition, the slower-moving, speculatively inclined private investor sees opportunity to make more than an investment return by buying real estate or commodities (which have not yet risen in price materially) in anticipation of a coming insistent demand. He, too, takes his investment profits to put his capital with its recently acquired increment into forms of purchase with greater speculative possibilities than bonds yield at the high level. *Thus the process of distribution in bonds takes place during the process of elevation in stocks and during the process of accumulation in commodities and real estate.*

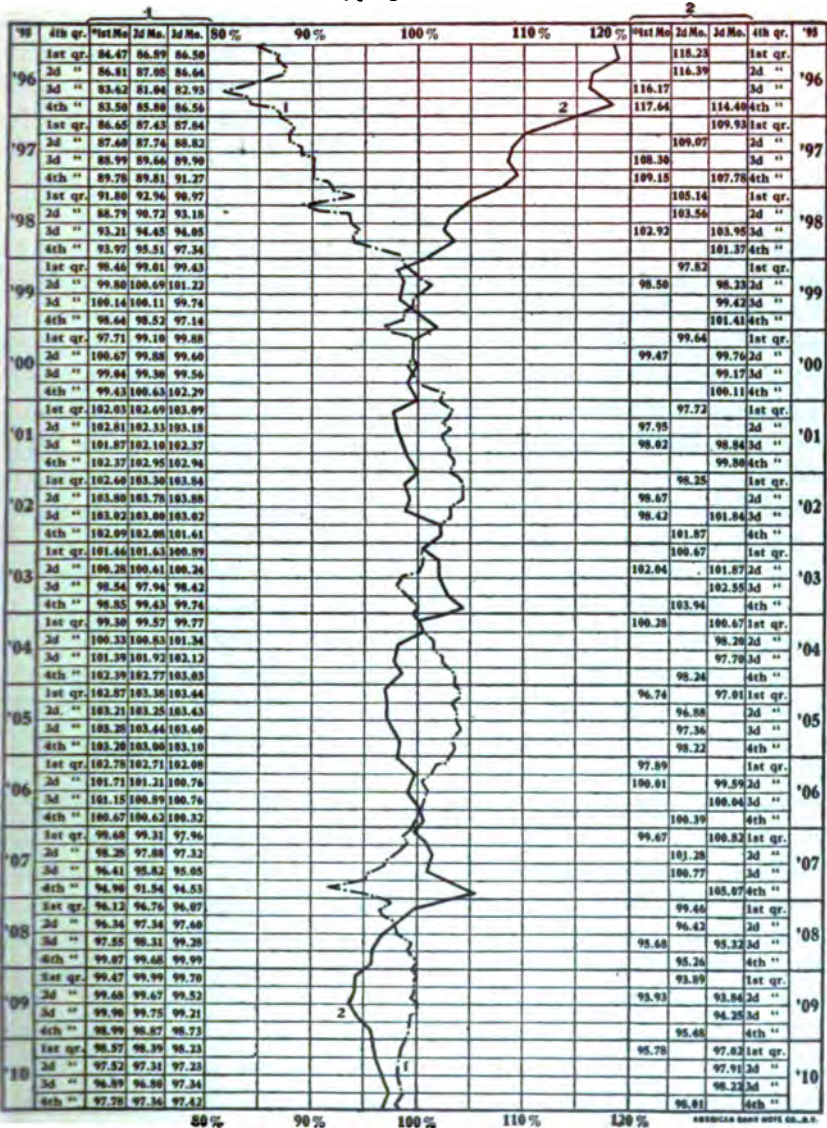
1451. **The Relation of Bond Prices to the Condition of Credit.** As related to bond prices, the argument of the business cycle amounts to this: the prices of current, high grade, listed bonds (and of other bonds in their degree) depend on the condition of general credit. The proof of it is strikingly evident in Chart XVI, which shows that the average price of the 10 bonds with which we have been dealing, varies inversely as the ratio of loans to deposits in the national banks of the United States.¹ This statement may seem difficult of understanding at first, but the fact is very simple.

1452. The national banks of the country are the clearing houses of commercial and personal credit. Loans represent the demand for, and deposits represent the supply of general credit. The ratio of loans to deposits, therefore, is the ratio of the demand for to the supply of credit; it is the index of the condition of credit. High ratio means necessity for liquidation by borrowers; low ratio, power for accumulation. These statements holds in spite of the fact, already noted, that the shifting of a bank's customers from a credit to a debit

¹ The indexes for the ratios are compiled from the reports of the Comptroller of the Currency. The information is available five times a year.

CHART XVI

- 1. Railroad Bond Prices—Relative Index Numbers (Average 1890-1907—100 Per Cent.)
- 2. Ratios of Loans to Deposits—All National Banks of the United States—Relative Index Numbers (Average 1890-1907—100 Per Cent.)



*Quotations included in weeks ended Friday during each calendar month.
A Composite of Charts that are copyright, 1910, by the Financial Graphic Co.

position may be accomplished without corresponding bookkeeping loss in the item of deposits. The weakened position may show more in the loans.

1453. When borrowers must liquidate, the prices of all things purchasable that have a national market must fall. The fall may be delayed so long that the cause is obscured; but sooner or later it must come. Therefore, a high ratio of loans to deposits means low prices for bonds, stocks, and commodities in general; and the effect of high prices is usually felt in this order for reasons outlined in the pages immediately preceding.

1454. But bond prices have a much more intimate relation to credit than do either stock or commodity prices. Bonds, themselves, are credit instruments for loans, and such bonds as are chosen for graphic study here are long-term credit instruments. High grade as they are, and listed, and fairly active on the principal exchanges, they respond quickly to alterations in the condition of credit; their movements are less hampered by extraneous circumstances, are little affected by fears for the safety of interest, or principal at maturity.

1455. The financing of the bond business, and of bond speculation in general, is another aspect of the same relationship between prices and credit. When credit is cheap, bonds may be bought and carried on loans that will cost less than the income or interest from the bonds. Bonds will therefore be in demand for the sake of this difference, and the logical appreciation which this difference should cause, in the long run. When there is no profit in thus carrying bonds, speculative holdings will be liquidated and bond prices will fall.

1456. For the several reasons mentioned the reciprocal relation subsisting between the price of credit and the price of other purchasables, such as commodities, stocks, and bonds, is most intimate in the case of bonds. This relationship authorizes a generalization of importance: Because the condition of the country's credit at large is not a thing subject to market manipulation, the movement in listed bonds is not, *in general*, subject to manipulation.

1457. It will immediately occur to many that the 10 active listed railroad bonds of the chart may be, as to movement, representative of bonds in general; that since they are of the kind that metropolitan banks and insurance companies buy, they, of all bonds, will be most sensitive to credit conditions. Only one of these 10 issues is among the dozen now most active on the New York Stock Exchange; but still the principle holds that the movement of active

listed bonds reflects credit most accurately; and if the movement in active and inactive unlisted bonds, particularly municipals, is less sensitive, nevertheless, the trend of it is of vast importance and will be the same as the trend of the listed.

1458. Since there has been established this very helpful relation between the price of listed railroad bonds and the condition of credit as expressed in the ratio of loans to deposits of the national banks of the country, the natural inquiry is: to what extent can the country's credit condition be forecasted? The writer does not know whether any one has successfully established significant statistical relations, on the one hand, between loans and the undertaking of new enterprises, and on the other hand, between deposits and the returns from enterprise. But, howsoever, the causes of credit conditions are very complex and obscure and carry us too far afield to warrant further capitulation here. Still, it would be false reticence not to mention that the Financial Graphic Company have drawn a graph, based on certain fundamental conditions, that anticipates, and therefore prophesies stock and bond prices. From a financial point of view it is the most important chart ever published.

1459. **The Curve of Bond Prices in Elevation and Depression.** The third phenomenon of bond price movement to which attention has been called is the acuteness of the depression in time of panic and the gradualness of advance and subsequent decline at the high levels attained on the resumption of general business speculation. This phenomenon is somewhat true of stock price movements, but in not so marked a degree. It is not true at all of commodity prices; but it has not been thought necessary to insert a 15-year commodity chart in support of the statement.

1460. In seeking a convincing explanation of what may be called the *scallop* of bond prices, two facts must not be lost sight of: securities are not consumed like many commodities; and they have a fairly fixed intrinsic worth to be distinguished from their market value.

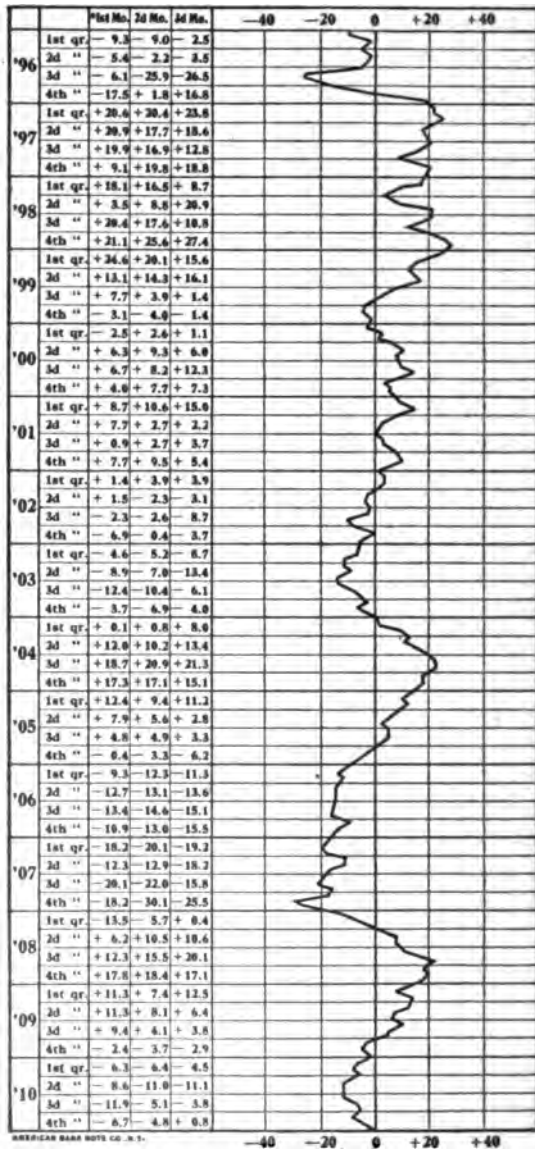
1461. Most goods have a seasonable or fashionable value out of all proportion to their merits as necessities. Fruits, furs, and automobiles, and articles generally which are perishable or dependent upon the caprices of vogue, have a value strictly subject to the laws of more or less immediate supply and consumptive demand. If the supply should be at any time in excess of the consumptive demand, the fall in value would not be tempered to any great extent by the

CHART XVII

FUNDAMENTAL CONDITIONS IN THE UNITED STATES

The Financial Graphic Index of Fundamental Conditions
in the United States—

Normal—zero (0); above normal—plus (+);
below normal—minus (—)



AMERICAN BOND NOTE CO. N.Y.

*Periods included in weeks ended Friday during each calendar month.

†As on the dates covered by the reports of the Comptroller of the Currency.

Copyright, 1910, Financial Graphic Co.

advent of the speculative demand which anticipates subsequent higher prices.

1462. Bonds, however, have an investment value distinct from their market value. The fact has already been emphasized as strongly as possible in these pages. This investment value may be expressed as the rate per cent. the interest of the bond yields at the price paid, assuming that the bond is to be held to maturity. One reason that the course of stock prices does not follow so markedly the "scallop" is because the income from stocks, at the price paid (i.e. their investment value), may be reduced in a period of depression by a reduction or cessation of dividends; and just as manipulation delays their decline, this uncertainty delays their recovery, and makes it spasmodic.

1463. Since, then, the supply of bonds will not be consumed like commodities, and the increase in the supply is fairly predicable, and since there is nothing that has a more stable investment value, bonds, which suffer in value, like everything else in the crisis, will rise most quickly and proportionately immediately afterward.

1464. Although the trend of bonds turns downward while all things else are on the upturn, yet the course of "hesitation" and descent is more gradual than that of stocks. The credit situation of the banks changes surely, but very slowly, and it takes months and sometimes years for the demands of business to create a money tension sufficient to force the banks to sell their marketable securities.

1465. It might have been mentioned earlier in this discussion that some of the same reasons which produced an early demand for bonds, after a crisis caused the highest grades of bonds first to receive an upward impetus. When confidence begins to return it seizes upon the most conservative investment channel, namely bonds; and upon the highest grade of bonds. Then, when the outlook is brighter, purchasers are not content with the low return of the highest grade, and will accept bonds of second grade. During the more prosperous and speculative times which follow, when all corporations show comparatively heavy earnings, attention is turned to industrial obligations. The order of bonds price revival is the order of bond merit.

1466. Likewise when the time comes for bank liquidation in bonds, it is the bonds of highest grade which are first sold, for there is least income in holding them, and most profit in realizing on them. Moreover the future looks bright, and it seems safe to hold

to inferior bonds of superior income. The buying of commercial corporations and of individuals depends for its breadth not so much upon banking as upon commercial conditions, so far as the two may be distinguished. Individuals and commercial corporations are just beginning to reap profits from general business to put into bonds. Consequently, for a time, general investment buying supports "on a scale down" the liquidation of institutions. It is not until another crisis is plainly imminent that bonds for which there is a free market are left for a brief period utterly to the mercies of the bargain hunter who buys for profit, primarily, rather than for income.

1467. The Range of Stock and Bond Fluctuations. Fourthly, as to the relative range of stock and bond fluctuations,—it is this bargain hunter, however, who by discretion in the time of his purchase adds to the *security of liquidation* of his invested principal. It is not to be expected that the range of fluctuation in bonds, the prime investment paper, will compare favorably with the range in stocks, the speculative paper *par excellence*. The respective ranges of the two since the panic of 1907 have been as one is to seven. That is, based on 100 as the 15-year price average, bonds have risen from the non-seasonal index number 91.54 in November, 1907, to 99.99 in December, 1908,—a gain of about $8\frac{1}{2}$ points; and stocks have risen from the index number 89.25 in November, 1907, to a high point in August, 1909, of 148.13, or about $58\frac{1}{2}$ points.

1468. Viewed as a matter of prices, the gain from panic bond buying during the last 25 years is very clear. A New York banking house finds that a dozen or more representative listed railroad bonds rose from the June low prices during the panic of 1884, $8\frac{1}{2}$ points before the close of the year, and over 17 points during the following year. The low prices in the panic of 1893 were made mostly in August. Before the new year prices had risen an average of nearly 10 points, and during 1894 they had risen about $3\frac{1}{2}$ points more.

1469. The monetary panic of 1903 was by no means a country-wide liquidation, and general banking credit was not severely strained; therefore the recovery from August low prices acquired before January was less than $4\frac{1}{2}$ points, and the advance during 1904 was only about $3\frac{1}{2}$ points additional, or $8\frac{1}{2}$ points in all.

1470. If we take for similar computation the prices attained by the 10 railroad bonds which are the basis for most of our graphs of bond prices, the results for the 1903 panic are about

BOND PRICES IN RELATION TO THE TRADE CYCLES 489

the same. Perhaps something will be gained by presenting the tables in detail,—not only for 1903, but for 1907:

	1903 Low	1904 High	Ad- vance	1907 Low	1908 High	Ad- vance
Atchison, Topeka & Santa Fe: General 4s of 1905.....	Oct. 97½	Sep. 104	6½	Nov. 89½	Dec. 101½	12½
Chesapeake & Ohio: First Consol. 5s of 1909.....	Nov. 114	Oct. 120½	6½	Nov. 101	Oct. 116½	15½
Chicago, Milwaukee & St. Paul Gen. Mortgage "A" 4s of 1909	Aug. 108	Dec. 112	9	Nov. 98	Nov. 104½	6½
Louisville & Nashville: Unified 4s of 1940.....	Aug. 97½	Dec. 104½	7½	Nov. 92	Dec. 103	11
Missouri, Kansas & Texas: First 4s of 1900.....	July 95	Nov. 108	8	Oct. 89½	Nov. 101	11½
N. Y. Central & Hudson River: West Shore Guar. 4s of 1901..	Oct. 106	Dec. 110½	4½	Nov. 94	Dec. 105	11
Norfolk & Western Ry.: First Consol. 4s of 1906.....	Oct. 94½	Sep. 102½	8½	Nov. 86	Sept. 99½	13½
Northern Pacific: Prior Lien 4s of 1907.....	Aug. 99½	Dec. 106	6½	Oct. 93½	Sep. 104½	10½
Reading: General 4s of 1907.....	July 98½	Dec. 108½	9½	Oct. 86½	Dec. 102½	16
Union Pacific: First Mortgage 4s of 1947.....	Sep. 99½	Dec. 107½	8½	Oct. 92½	Dec. 105	12½
Average.....			7.45			12.01

1471. The Present Trend of Bond and Stock Prices. It is a curious, but significant fact, that although the courses of bond and stock prices over the past 15 years have shown sufficient similarity in trend to indicate that from crisis to crisis they are affected by similar sets of influences, nevertheless, during the past 10 years stocks have displayed a "buoyancy" that has no correspondence in bonds.

1472. The high point in stocks in 1902 (as shown in chart) was greatly exceeded in the next period of prosperity, culminating in 1906, and the higher level of prices in 1906 was maintained for a somewhat longer period than the lower level of high prices in 1902. The high prices of the prosperous year 1909 have not quite attained the level of 1906, but inasmuch as 1909 prices prevailed in a period of business activity which cannot be called unduly speculative,—at least in the same degree as that of 1905-06,—it seems probable that an old-fashioned bull market would carry the line to a new high point. Again, the low prices of the panic of 1903 are far above the prices of 1900, and although the 1903 low level was almost reached in the panic of 1907, it was for the briefest possible time. The reaction was more abrupt than the decline.

1473. The high point reached by bonds between 1900 and the panic of 1903 was not quite reached by the high point between

1903 and 1907, and thus far since the last panic the price curve gives every indication of a shift to lower levels than have prevailed for a decade. The low point of the panic of 1903 seems high compared with the low point of the panic of 1907; and indeed, not much lower than the recent high point.

1474. The question naturally arises, why should these two classes of securities, which show the same general trend between 1860 and 1900, and which have secondary or cyclic movements of the same general character, show a recent marked tendency to diverge in the general trend? As to bonds, part of the answer is involved in the diminishing return which results from advancing prices. But otherwise, the same conditions to which we have attributed the long uplift have been more favorable to high bond prices since the turn in 1902 than previously. Therefore, the other influences accomplishing this reversal of trend must be looked into. They must be cogent for they have predominated over conditions which we have found of no mean growth and weight.

1475. In the next chapter, then, we shall cautiously put out a few lines of thought in an attempt to explain the recent trend of bond prices for the help such an attempt may be in appraising the new primary price movement that appears to have set in.

CHAPTER XXXIX

THE FUTURE OF BOND PRICES

1476. We come now to the most important matter involved in the course of bond prices. Are we to expect that the security of principal invested at the present price levels will be hazarded, over the coming decades, by a reversal of the conditions that for 50 years have, in the main, been favorable to long-term loans at interest in this country? And will the interest on this principal be worth less to us, and therefore its security be impaired, because of a future decreased purchasing power? It is important to know. The interest of a 20-year 5 per cent. bond is of much more value than the principal.

1477. The Prospect of Advance. A glance at the chart of Railroad Bond prices will recall that from 1899 to the present the standard funded loans have been at an unprecedentedly high level. In 1899 the upward trend of the four characteristic railroad bonds¹ had carried them to such a point that they yielded only about 3.80 to 3.85 per cent. In 1856, the shorter term bonds that were the basis of the chart for the early years² yielded about 7.55 per cent., or approximately twice as much.

1478. It needs no chart nor figures to inform us that any great elevation in price level over that which has prevailed for the past 10 years must be slight and transitory. For the indefinite future a return averaging at least 4 per cent. will probably be demanded of money to the loan of which there is attached a commercial risk. The closer the approach to zero the greater the resistance encountered to further lowering of the return, or to further increase in the price.

¹ Chesapeake and Ohio First Consolidated 5s of 1939.

Chicago, Milwaukee and St. Paul General Mortgage "A" 4s of 1939.

Louisville and Nashville Unified 4s of 1930.

New York Central and Hudson River, West Shore Guaranteed 4s of 1931.

² Erie First Mortgage 7s of 1868.

Chicago, Rock Island and Pacific First Mortgage 7s of 1870.

Illinois Central First Mortgage 7s of 1875.

New York Central Premium 6s of 1883.

1479. The Prospect of Decline. If bond prices cannot advance materially, are the prospects good that they will hold their own, or are we likely to see material declines? There is great difference of opinion and nothing but time can decide. Meanwhile a clear outline of the principal forces at work determining the long trend of bond prices may quiet the misgivings of some who now fear to buy long-term bonds lest they might, in the future, be unable to realize without great sacrifice when in need of funds, or lest the income from their bonds should so diminish in purchasing power as to be insufficient for their needs.

1480. We have concluded that the principal forces making for the long and steady increase in American bond values were increase in bond security achieved with the growth and development of our national resources of all kinds, and increase in the demand for bonds, due to our growth in surplus wealth. If anything is certain, these forces will continue for an indefinite period to operate in favor of good bond prices. If the bond price chart shows a slightly downward tendency at present, it must be due, not to weakness in this uplifting power, but to preponderance of the depressing power, for otherwise the stock price chart would show a downward trend for the last decade—which it does not.

1481. Conceding, then, that material prosperity works toward continuance of good bond prices, there is nothing seriously proposed but the decline in the value of money itself, which can permanently lower the value of bonds. A \$1000 bond bearing 5 per cent. interest yields \$50 a year. If 20 years from now that \$50 will purchase only what \$30 does now, or if the bond then matures, and the \$1000 will purchase what \$600 does now, obviously the fact will have a depressing tendency on bond prices meanwhile.

1482. The Increasing Annual Output of Gold. As regards bond prices this is substantially the position of those who see in the recent great increase in the annual production of gold an oversupply with consequent depreciation of the money unit, or standard of value. If there lurks a fallacy in their theory it is desirable to bring it out of hiding, for within the past three years the doctrine of depreciation has got such a foothold in scholastic and investment circles, that many who have hitherto bought bonds have been led astray into speculative ventures. To some of them a day of reckoning will come when they will realize that it is no longer a theory but a condition that confronts them.

CHART XVIII

GOLD

1. U. S. Gold Production
2. World Gold Production

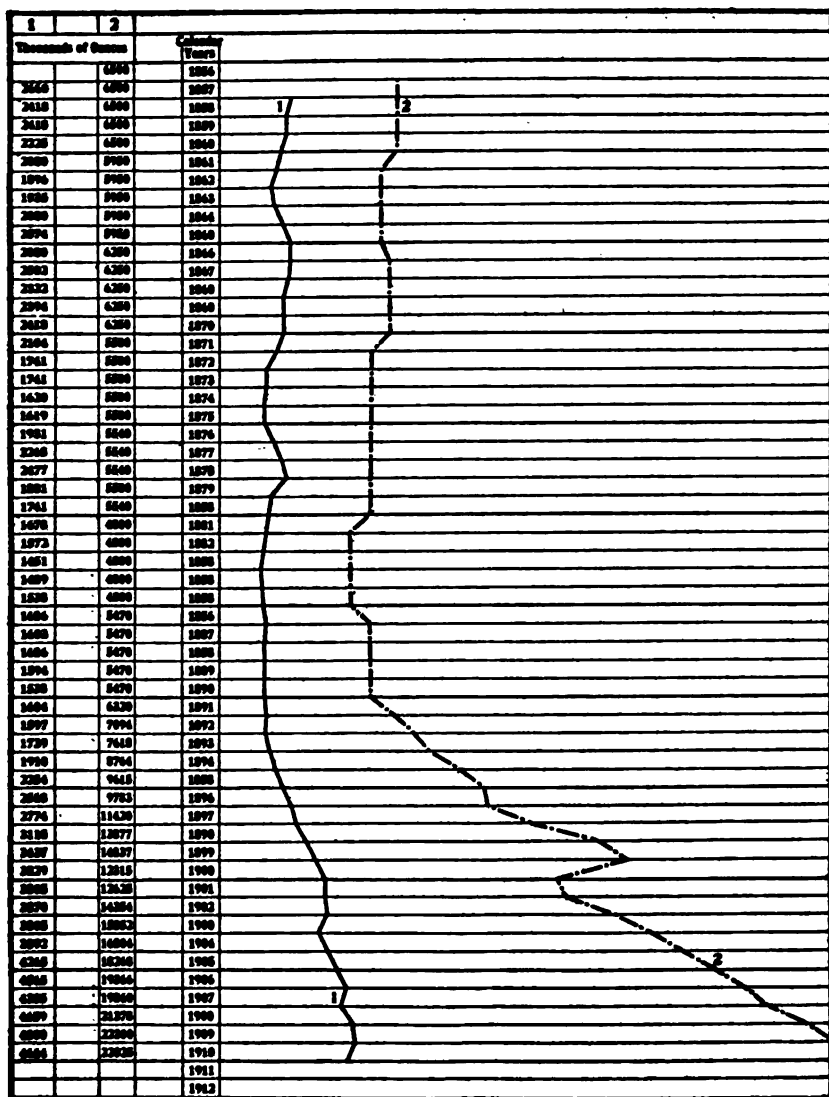
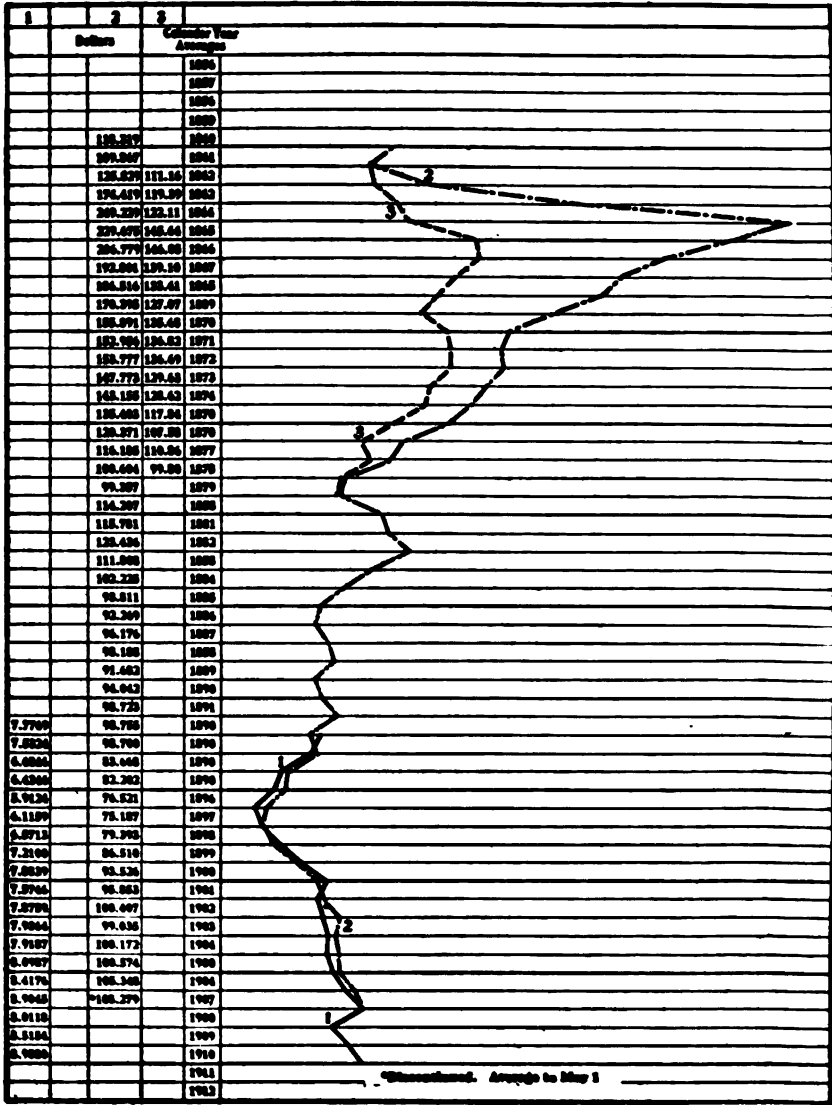


CHART XIX

COMMODITY PRICES

- 1. Bradstreet's Index Number
- 2. Dain's Index Number
- 3. Commodity Prices in Terms of Gold



1483. There can be no gainsaying that for the past two decades the annual increase in production of gold has been out of proportion, in certain countries, to the increase in the production of many commodities. In the case of such commodities as meat this is largely due to inevitable constriction of areas that can be devoted to the production of these commodities. At least this is true in the United States. As far as gold itself is concerned, the increase in production is due largely to the discovery of new sources of supply in Alaska, Australasia, South Africa, and elsewhere; but more particularly to improvements in mining methods and metallurgical processes, which materially reduce the cost of production and therefore make profitable the exploitation of large bodies of low-grade ore.

1484. The invention of bucket and pump dredges to shovel and suck up gravel from sandy river beds and auriferous beaches, and the application of the dredge method to arid sand plains by what is called "paddock dredging," enlarges enormously the possibilities of profitable gold production beyond the domain of ordinary mining. Hydraulic and dry-blowing processes are better known gold mining developments. As placer and rich surface deposits, assaying \$25 the ton, give way to more extensive interior work on low grade material yielding from \$2 to \$4 the ton, the gain in quantity under cheapened cost more than compensates for the loss in ore quality; and even if the mines were all exhausted, very probably chemical and engineering improvements would suffice to make profitable the utilization of gold in sands and clays. The graphs of annual gold production for the United States and for the world since 1857 (Chart XVIII) make plain the results of recent gold mining developments.

1485. The profit on gold taken from the Rand district is said now to be over 40 per cent. The absolute cost of mining is likely to diminish indefinitely, rather than to increase; and since the supply of visible ore is larger than at any time hitherto, the prospects are that the annual product will continue to increase, indefinitely, as long as manufactured articles, or other commodities, will not yield nearly equal profit from production.

1486. Gold is now the accepted medium of exchange and standard of value. In 1871 silver was demonetized in Germany, and about the same time in the Scandinavian Kingdoms, the Netherlands, and France and the other states in the Latin Union. In 1893, India closed her mints to the free coinage of silver, and the United States repealed the Silver Law. Not to mention other countries of

Europe, Mexico, the great producer of silver, Japan, and a majority of the South American states, and even some in Africa have now come upon a gold basis. China is the only great nation with a silver standard.

1487. Because the gold standard is of general acceptance among commercial nations, and output and total supply bid fair to increase for years, there has arisen and spread this belief that the value of gold will continue to depreciate, and that this depreciation will be measured by the rise in the average price level. Corollary to this is the thought that a rising price level, if long continued, is accompanied by rising or high interest rates. High interest rates mean, of course, low prices for bonds.

1488. **The Quantity Theory of Money.** At the bottom of this contended relation between the gold supply and bond prices is the quantitative or quantity theory of money. Therefore a word as to this theory. Economically speaking, the value of a thing is what it will bring in exchange for some other thing. The thing we desire less and wish to dispose of, and the thing we desire more, and wish to obtain, are not necessarily material; either or both may be intangible. Goods may be exchanged for money; labor, for good will.

1489. The exchange of thing for thing is barter. Barter is a social activity of all. An advance in commercial intelligence results in the use, by custom and law, of a standard or standards of value, for the convenience in exchange that results. This standard may be wampum or skins, for instance. Obviously, if the supply of beads or animals, from which the wampum or skins are obtained and freely made, should suddenly be increased in the tribe or nation which used the standards mentioned, it would take more wampum or skins to buy a gun or horse, than theretofore.

1490. Barter is succeeded by regulated business, and wampum and skins by less destructible and more portable and denominational coin. The value of a thing then becomes thought of in terms of coin: value becomes practically synonymous with price. Price, therefore, is the ratio of coin to things. The more things and the less coin, the more each coin will buy. The less things and the more coin, the less each coin will buy. This is the basis of the quantity theory of money. It is a logical application of the principle of supply and demand. In its fundamentals, as expressed here, the quantity theory must be accepted. They who protest are playing with words. The theory has been an axiom among economists for a century or two.

1491. Although coins are an advance over skins, they themselves are inconvenient as a medium of exchange, except in small transactions. More convenient are paper certificates, upon presentation of which at some appointed place of exchange like a bank or a treasury, the holder may obtain coin in the quantity specified. For larger transactions still, when the value of the consideration demands security in the passage of it, non-negotiable credit instruments have been devised to take the place of coin and paper certificates. Further than this, for one reason or another a government may see fit to issue fiat money: irredeemable paper that may legally be tendered in payment of debts in which the contract does not call for payment in any specified form.

1492. The value of a thing, then, is expressed, not in terms of coin, but of money, and by money is meant, not only coin and coin certificates, greenbacks and banknotes, but also credit currency—all to the extent that they obtain general acceptance as money and therefore perform the functions of money.

1493. The Equation of Price. Expressed in a mathematical way, the essential principle of the quantity theory is that since

$$\text{Value} = \frac{\text{Supply}}{\text{Demand}}, \text{ therefore}$$

$$\text{Price} = \frac{\text{Money}}{\text{Things}}$$

1494. But since not all things are for sale, and some money never circulates, and the amount of each which affects price is the amount that business brings into the market,

$$\text{Price} = \frac{\frac{\text{The Demand for Money}}{\text{The Supply of Money}}}{\frac{\text{The Demand for Things}}{\text{The Supply of Things}}}$$

1495. In a sentence: "Price is the equation of the ratio of the supply to the demand of goods" (things) "on the one hand, and of the supply to the demand of money and credit on the other."

1496. It is customary to entitle things purchasable, which is the denominator of this equation, "commodities," but the term is mis-

leading; for we associate commodities more particularly with the material things of our daily life, such as foods, building materials, supplies, etc. By commodities should be understood *anything* which is bought and sold. Labor and franchises are just as much commodities, in our sense, as wheat and steel.

1497. The initial letters of the three terms, price, money, and commodities, give us the equation in the form

$$P = \frac{M}{C}$$

but it needs still further development.

1498. If a dollar passes from one hand to another during a day, so that, in all, four persons have made purchases, and four have made sales, with it, of one dollar each during that day, then it has performed the work of any four dollars which, less active, have taken one day to pass from one buyer to another. To all intents and purposes, therefore, the volume of money is increased according to the rapidity with which it circulates. "The nimble sixpence does as much work as the slow shilling." This principle is called the velocity of circulation. Applied most broadly it involves the activity of all money capital.

1499. Likewise, if a bushel of wheat, by reason of a perfected mechanism of exchange, can be sold at one dollar, ten times during a day, it will require ten dollars of money or money credits to finance it; whereas if sold only once, only one-tenth of this amount of money would be involved in the exchange. Therefore the rate of turnover is as important in commodities as in money. The amount of commodities multiplied by the rapidity of exchange is the volume of business.

1500.

If v = velocity of circulation
and r = rapidity of exchange

$$P = \frac{Mv}{Cr}$$

That is to say, the price of commodities is determined by the relation of the amount of activity of capital to the volume of business.

1501. The unstable equilibrium of this equation is liable at any time to be upset by a psychological factor. Price is not merely the mechanical adjustment of demand and supply; it is the composite

judgment of buyers and sellers as to future adjustment of demand and supply. This factor has its most apt illustration in the price movement of the exchanges. Failure to appreciate its value is the cause of much puerile criticism of the exchanges.

1502. *Gold in the Price Equation.* To return now to the main quest,—by a study of commodity prices, we are seeking to establish a relation between bond prices and an increasing gold production.

1503. The first thing to bear in mind is the hopeless inadequacy of any statistics as yet compiled or likely to be compiled in the near future. The nearest approach to reliable figures is in the matter of recent gold and silver production. From the discovery of America until 1885, we are dependent upon a table of averages for certain periods made by Dr. Adolph Soetbeer. From 1885 to the present we have the annual estimates of the Bureau of the United States Mint. These estimates are based on interrogatories presented in the name of the Government by our consular representatives to the authorities of the countries in which they are resident. A reading of their reports is *prima facie* evidence that the estimates of the Mint only approximate the facts. From some countries, for instance, it has not been possible to obtain the net coinage, i.e. less domestic and foreign coinage melted for recoinage, as well as old material, plate, etc., used in coinage. In 1908 the amount of this recoinage in the 26 countries reporting was \$26,800,000 gold and \$35,680,000 silver.

1504. As we shall see later, we are as much concerned with the world's total stock of coined gold as with the annual product; but conjectures as to the total stock in 1850, let us say, vary by 100 per cent. or more. This is because there were no satisfactory records of production at that time, or previously, and there are now no means of ascertaining what proportion of the gold then existent was used in the arts, or what proportion has since been lost to currency by abrasion, shipwreck, hoarding, etc.

1505. But, accepting these inaccuracies as negligible, our first contention is that although an increase in the annual gold supply seems inevitable for some time to come, *according to the quantity theory this is not the issue*; our chief concern is with the *total* money supply in its relation to the volume of business. Is it inevitable that gold and silver and their certificates, and greenbacks and banknotes, and minor coins and credit instruments, which constitute the *M* of the price formula, will continue to increase in volume? Or if an increase is inevitable will the *M* increase as rapidly as gold coinage or the volume of business?

1503. If our chief fear is from gold, let us see what part of the world's gold is coined. In 1908, 26 per cent. of the estimated total output was used in the arts, etc., but the average of a period of years is more accurate. Since 1879 the United States Government has furnished for use in manufactures and the arts, \$450,000,000 of new gold. About \$50,000,000 of this was foreign coin and bullion, but offsetting this is the fact that the Government is not the sole purveyor to industry. During the same period the output of gold in the United States was about \$1,500,000,000. In other words, if the United States is a criterion, 30 per cent. of gold from the mines goes into arts and manufactures. Allowing 10 per cent. for loss, the Depreciationists are usually ready to concede that not more than 60 per cent. of new gold is coined. And yet they cite statistics of total production rather than those of total coinage. Some of them even will concede, "It is certain that about half of the gold produced . . . was used in the arts or lost."

1507. Secondly, What part of the world's metallic money is gold? Since 1872 the mints of the world have coined \$8,011,467,123 of gold and \$5,177,685,596 of silver (coining value). That is, about 60 per cent. has been gold and 40 per cent. silver. But the demonetization of silver since 1872 vitiates this average. The average for 1906, 1907, 1908 was about 66 per cent. gold and 34 per cent. silver.

1508. Since metallic money in its entirety, and not solely gold, is part of the M of the price formula, it is almost, if not quite, as necessary to consider the coinage value of silver as of gold. This the Depreciationists usually fail to do.

1509. The following tables will illustrate how differently we shall look upon M of the formula, if we think of it as *at least* gold and silver, rather than as merely gold:

World Production of Gold and Silver (in ounces)

	Gold	Increase	Silver	Increase
1872	6,330,194		137,170,919	
1876	9,783,000	55%	157,061,000	15%
1880	12,626,327	29%	173,011,238	10%
1884	21,378,481	69%	203,186,370	12%

1510. ~~But~~ with silver demonetized, a comparison of the rates of ~~the~~ the two metals should deal, not with weights, but with ~~the~~ ~~the~~

Coinage of Gold and Silver in the Mints of the World

	Gold	Increase	Silver	Increase	Gold and Silver Increase
1891	119,534,122		138,294,367		
1896	195,899,517	64%	159,540,027	15%	31%
1901	248,093,787	27%	138,911,891	12% ¹	9%
1908	327,018,200	32%	194,692,737	40%	31%

1511. Briefly, although the coinage value of gold in the year 1908 was 174 per cent. more than in 1891, the coinage value of gold and silver *together* was only 102 per cent. greater. The fact that this coinage was not all new metal will not militate against results, since the recoinage factors will probably cancel out.

1512. Thirdly, what part of the world's "money proper" stock of all kinds is gold? The dearth of data is disheartening. The Director of the Mint has published a table of the stocks of money in 1873 of 13 leading countries, dividing the stock into gold, silver, and uncovered paper. Gold (coin and bullion) was slightly over 25 per cent. of the total, and paper slightly more than 50 per cent.

1513. A similar table from the Mint Report of 1896, embracing 34 countries, credits gold with over 46 per cent. of the entire monetary stock, and uncovered paper with less than 29 per cent.; and this table, although "necessarily an estimate," was "believed to exhibit approximately the stock of money in the world." The change in the ratio of gold to the total stock was undoubtedly due to the demonetization of silver. For the future this influence is not likely to work much further change.

1514. For the fiscal year 1908-09 the gold coin and bullion in the United States were 48 per cent. of all moneys. Government and national banknotes were 31 per cent. Perhaps, then, gold forms nearly one-half of the world's present metallic and paper money stock.

1515. Fourthly, what relation of volume does gold bear to the world's credit currency? The writer believes that there are extant no trustworthy figures for the world at large. So far as those of the United States may be useful for analogy they are as follows:

1516. In 1909 the estimated total individual deposits available for transfer by check in national, state, savings, and private banks, and loan and trust companies were \$14,035,000,000, and the total

¹ Decrease.

estimated stock of gold coin and bullion in the country was \$1,641,000,000, or about 12 per cent.

1517. Quantitatively speaking, then, these appear to be the facts concerning the relation of gold to *M* of the price formula:

1. From 50 to 60 per cent. of all new gold is converted into money.

2. About 65 per cent. of metallic money value is gold.

3. The comparatively slow increase in the coinage value of silver retards the increase in the total stock, so that instead of fearing the increase of gold, amounting to 174 per cent. in 17 years, we have only to reckon with the metallic increase of 102 per cent. for comparison with the probable increase in the volume of business.

4. Perhaps 45 or 50 per cent. of all "money proper" is gold.

5. But infinitely more important than all the foregoing, gold is only a fraction of the world's total currency,—only 12 per cent. of the credit currency in this country,—and therefore subject in its purchasing power to the limits that law or expediency places upon the inflation of currency.

1518. We have dealt thus far wholly with gold in its relation to money, and have emphasized the fact that gold is but a part of money, and that the much-talked-of increase in the gold stock has less mathematical bearing than most people believe. Nevertheless, since gold is the basis of ultimate redemption of most redeemable money, and has an intimate relation to the worth of fiat money, the demand and supply of gold largely influence the demand and supply of other kinds of money,—more strongly than is indicated by the quantitative ratio.

1519. The development of banking also is contributing to the disproportionate influence of the monetary standard. Within a country, clearing house systems reduce exchanges of credit to mere settlement of daily balances; and between countries, international banking houses are constantly reducing the volume of gold shipments necessary to the adjustment of foreign accounts. The greater the facilities for credit exchange, the greater the tendency toward superfluity of gold.

1520. This has been the conclusion of economists who have studied the effects of the discovery of gold in California and Australia. These effects had a profounder influence in countries that had developed banking and credit facilities. There, new gold, converted into banking reserves, and made the basis of banking credit,

increased the demand for purchasables, and therefore the price of them.

1521. Velocity of Circulation. As to velocity of circulation, which expresses the dynamic efficiency of money, Prof. Irving Fisher writes:

"An inviting field for statistical study is offered by the velocity of circulation. Pierre d'Essars has shown that the rate of turn-overs of bank deposits varies enormously in Europe; for instance, from 160 times a year in the Reichsbank of Germany to less than once a year in the Bank of Greece. Similar variations have been found by the present writer in this country. The velocity of circulation for money proper has never been properly computed. Judging from the rate of turn-over among Yale students, it would be something like once a week."

1522. If the multiples of M in the price equation are such a hopelessly unknown quantity, why should we be grievously troubled at an increase in that part of M which stands for gold and gold's representatives?

1523. Commodities in the Price Equation. If the constituency, volume, and activity of money—the numerator—perplex us, what shall we say of commodities and their rapidity of exchange,—the denominator?

1524. What is meant by commodities has been stated. All things tangible or intangible, except money, that are exchanged for money or credit, are commodities within the meaning of the equation. There are not, and never can be, estimates of the volume of commodity units as trustworthy as the estimates of money volume. We may have some slight apprehension of the stock of material things in the world, and of the yearly increment to that stock as expressed for instance (in a previous chapter) by the annual crop and mineral production in the United States,—bales of cotton and tons of metal. We may have better knowledge of the commodity real property, and we may deal intelligently with its units. But what of business options, good-will, municipal and state franchises and the like? How shall they be estimated and measured, their volume computed and reduced to a unit in common with other commodities?

1525. The Rapidity of Commodity Exchange. However immeasurable and irreducible, it is as certain that the units of commodities are constantly increasing in number, as it is the units of money are. To deny it would be to deny the industrial progress of the world. The question then is, are they increasing as rapidly, and if so, is the velocity of commodity exchange increasing as rapidly as

that of money circulation? If any one has a convincing answer to either question he has failed as yet to put it into print.

1526. The quantity of C in the equation is unknowable. The average rapidity of exchange r is unknown. Indeed, in our thinking it is hard to separate the v of the numerator from the r of the denominator; the rate of velocity circulation from the rapidity of commodity exchange, for the major part of commodity exchange is achieved through the medium of credit, and therefore measured, to a degree, by bank clearings and international exchange. Furthermore an acceleration in money and credit circulation is at one time caused by, and at another time the cause of, acceleration in commodity exchange.

1527. But, although an increase or decrease of v naturally implies some corresponding increase or decrease of r , these two factors in the fraction do not cancel out; each must be considered separately in relation to its multiplicand, M , and C , respectively.

1528. Since, therefore, it is impossible to prove statistically, that the increase in rate of gold production exceeds the world's present requirements (which are expressed in CE), the Depreciationists are obliged to content themselves with the categorical statement that such is the case, and in confirmation to point to the fact that in recent years prices have risen.

1529. In America, at least, the argument has taken this form:

1. "That both the output and supply of gold are likely to increase rapidly for many years.

2. That, therefore, the value of gold will depreciate as the quantity increases.

3. That this depreciation will be measured by the rise in the average price level.

4. That a rising price level, if long continued, is accompanied by rising or high interest rates.

5. That high interest rates mean low prices for bonds and all other long time obligations drawing fixed rates of interest, dividends, or income."¹

1530. We have devoted what may seem disproportionate space to the quantity theory in order to make perfectly clear the fact that the second and third statements do not necessarily follow from the first. The gold supply may increase rapidly, and yet the value of a unit of gold may not depreciate because political or other events may palsy trade and lessen the velocity of circulation, and

¹ *The Gold Supply and Prosperity*. New York, 1907, p. 198.

in this way lessen the efficiency of money, without lessening in full correspondence the rapidity of commodity exchange.

1531. Or on the other hand the gold supply may increase and the velocity of circulation also, but the supply of commodities may increase in greater ratio, and in a period of active speculation the rapidity of exchange also.

1532. These or similar conditions in the United States must have counterbalanced the tendency of gold to depreciate, from 1891 to 1897, for during that period our annual gold production increased from 1,604,000 ounces to 2,774,000 ounces, the world's production from 6,320,000 ounces to 11,420,000 ounces, but Dun's index number for commodities fell from 98.723 to 75.187.

Surely an economic factor on which we can base our business dealings ought to make its influence felt before the lapse of six years!

1533. **The Distribution of Money and Commodities.** The principal fallacy in this gold depreciation theory lies in a failure to recognize the proper application of the quantity theory to the price problem.

Mr. Bronson C. Keeler has stated as clearly as any one how the quantity theory should be modified to meet conditions affecting prices.

"Each country in the world receives its distributive share of an international standard of value, and that share constitutes the measure of value of the property offering for exchange in that country. Each community receives its share of the country's share, and each man in the community receives his distributive share of the community's share.

"These distributive shares are divided into commodity-funds, a certain percentage of the total being used as the measure of the several commodities exchanged. Thus, in an average community, about 15 per cent. of the money goes for rent, and constitutes the rent fund; about 45 per cent. for food, . . . and so on. These commodity-funds vary from season to season and from minute to minute. . . .

"In general, at any time, at any given point, the price at which a commodity sells is determined by the amount of money in that commodity-fund divided by the quantity of that commodity offered for sale. The division is performed by the interplay of demand and supply; by what Adam Smith called 'the higgling of the market.'

"A moment's reflection will satisfy any practical man that these commodity-funds are real entities, and not theoretical. Every Congress or legislature, in passing an appropriation bill, recognizes their existence; . . . A second reflection will convince a man that while these commodity-funds differ from time to time, and under varying circumstances, they yet bear a certain fixed ratio to one another. . . . And a third reflection will convince him that each commodity-fund in a community bears a ratio more or less fixed to that community's distributive share of money. Statistics also confirm this abundantly. If the value of money changes either way, relatively to the volume of commodities, the percentages will remain the same, and therefore prices must change correspondingly, otherwise the money would not be in the community's distributive share."¹

¹ Ibid., pp. 24-26.

1534. The application to our study, of this theory of the distribution of money and commodities, is that we must compare statistics of gold production and prices which relate to the same political divisions, and if possible to the same general classes of commodity-funds.

1535. A comparison of the world's total supply of money, and its average velocity of circulation, with the average level of world's commodity prices would be valid; but this is impossible for we haven't the figures for commodities. The Aldrich Senate Report stopping at 1891, the tables of the Bureau of Economic Research, covering 1889-1900, the Reports of the United States Bureau of Labor, Dun's and Bradstreet's Indexes¹ are reasonably comprehensive within their own field of inquiry, viz., material commodities within the United States; but in no other country have we, probably, equally good authority. In England Jevons' and Sanerbeck's tables cover the last 25 years, but they, and the tables of the London *Economist*, are not sufficiently comprehensive. Besides the foregoing we have the indexes of Soetbeer and Heinz in Germany, and for Japan, India, and China, the Japanese Report. A few other less well-known tables and reports might be mentioned. The entire material, however, is utterly inadequate for detailed conclusions.

1536. It would be more nearly valid to make a comparison, over a period of years, of the average volume of money and credit of all kinds, in the United States, and the average rate of circulation, with the average price, of all material commodities, in the United States, but all students of the subject, thus far, have lacked either the courage or the capacity. Moreover the results would have to be checked in some way by the "distributive shares" and the "commodity-funds" of the rest of the world.

1537. The comparison that commonly has been made is, we believe, absolutely invalid beyond the most vague generalizations, although we ourselves have used it against the users some paragraphs above. It is the comparison of the increase in the world's supply of gold with the recent increase in commodity prices within the United States.

1538. Local Causes for the Increase in Commodity Prices. Because commodity prices in the United States have risen markedly, however, since 1897, it is natural and proper to attribute a part of the

¹ Bradstreet's Index, for instance, is now built on the basic prices for the standard grades of 96 commodities in the principal wholesale markets.

rise to the increase of gold. There has been a much less marked rise in Germany and France, and none of any consequence in England, if we are to credit the imperfect foreign indexes. Then let us see whether the chief causes are not probably local, and subject to change under future commercial and political evolution.

1539. The March, 1909, Bulletin of the United States Bureau of Labor gives a very detailed and careful analysis of the movements of commodity prices in the United States for recent years. Referring to influences affecting prices the Bulletin says:¹

"The causes are too complex, the relative influence of each too uncertain, in some cases involving too many economic questions, to permit their discussion in connection with the present article. It will be sufficient to enumerate some of the influences that cause changes in prices. Such influences include variations in harvest, which not only contract or expand the supply and consequently tend to increase or decrease the price of a commodity, but also decrease or increase, to a greater or a less degree, the purchasing power of such commodities as are dependent in whole or in part upon such commodity; changes in demand due to changes in fashions, season, etc.; legislation altering internal revenue taxes, import duties, or bounties; inspection as to purity, or adulteration; use of other articles as substitutes—as, for instance, an advance in the price of beef will cause an increased consumption of pork and mutton; improvements in methods of production which will tend to give either a better article for the same price or an equal article for a lower price; cheapening of transportation or handling; speculative manipulation of the supply or of the raw product; commercial panic or depression; expanding or contracting credit; overproduction; unusual demand owing to steady employment of consumers; short supply owing to disputes between labor and capital in industries of limited producing capacity; as in the anthracite coal industry in 1902; organization or combination of mills or producers, thus enabling, on the one hand, a greater or less control of prices or, on the other hand, economies in production or in transportation charges through the ability to supply the article from the point of production or manufacture nearest the purchaser. So far as individual commodities are concerned, no conclusion can safely be formed as to causes without the examination of the possible influence of several—in some cases, perhaps all—of the causes."

1540. Although the Bulletin makes no effort to explain a general change in price level, it does recognize two phases of the application of the quantity theory which are usually overlooked. It sees that price variations originate in commodity production as well as in gold production. It sees that community and class distribution of money and commodities are important, as well as the general money and commodity volume. By implication it suggests that such things as the tariff, currency inflation, the formation of trusts, monopolies, and labor unions, and governmental and personal ex-

¹ Pp. 216-217.

travagance are country-wide influences tending to raise the prices of our "distributive share" of the world's commodities, out of proportion to any general rise throughout the world, if there is such a rise.

For obvious reasons the Bulletin lays no emphasis on the tariff. Shortly before his election Governor Woodrow Wilson of New Jersey said:

"Now what is the cause of the high cost of living? The cause is that the tariff wall has been built so high that business concerns, being absolutely free from the danger of foreign competition, can get together and control prices and cost."

1541. But the Bulletin also mentions a fact which is generally recognized, but which has not as yet been mentioned in these pages; that constantly lessening costs of manufacture and distribution tend to lessen, or retard the increase in prices in general. It has been estimated that this force has a tendency to lower prices about $2\frac{1}{2}$ per cent. a year.

1542. *Influences Tending Toward Lower Prices.* This leads us to say that a little thought devoted to the influences mentioned in the Bulletin will satisfy most people that, not only has the rise in prices (most marked in the United States) been due to many causes, of which gold is only one, but that many of these causes, in their strength peculiar to the United States, are as likely to work toward a downward movement, in the future, as toward an upward.

These depressants may be classed as the causes which tend to decrease the amount or circulation of money, and those which tend to increase the amount or circulation of commodities.

1543. *Influences Tending Toward Gold Absorption.* Chief among the former is the growing dissatisfaction with the currency situation in this country and abroad. The Federal Government estimates that on January 1, 1907, there was \$4,132,000,000 uncovered paper in circulation throughout the world. Speaking of this matter Mr. Maurice L. Muhleman, ex-Deputy Assistant Treasurer of the United States, writes:¹

"It is well known that in estimating the uncovered paper volume, the specie in bank is all used to offset note liabilities, leaving nothing against deposit or other credit liabilities; and a substantial part of the covering specie consists of silver. Here, then, is a broad field for the employment of the increasing gold product, sufficient to absorb the available product for a decade or more, which governments should recognize."

¹ *The Gold Supply and Prosperity*, pp. 88-89.

1544. The solution in this country of an inelastic and depreciated currency may be the maintenance of a multiple standard of value by which the commodity price level will be fixed. The price level may be maintained by regulating the volume of money in circulation according to the prescripts of a monetary commission rather than according to the orders of the Secretary of the Treasury, which are emergency measures, affected by, and liable to, hostile criticism.

1545. We shall have an important additional use for the precious metal when the time comes that our banknote circulation is based on gold rather than on bonds.

1546. The extension of the gold standard to those countries which have not yet adopted it, will tend to relieve any plethora of gold, but only to the extent that the coinage value of silver, and that of any paper currency which may be built upon it, are reduced thereby.

1547. In general it may be said that the present trend of public opinion is toward a sounder currency, which is another way of stating that we recognize velocity and inelasticity of circulation to be the chief mechanical causes of panics. The remedy implies a greater amount of gold held in reserve against each commodity unit.

1548. Not only will the monetary aspect of the price equation be relieved, in all probability, by enlarged channels for the diffusion of gold in this country, but there is a natural and inevitable check upon gold production throughout the world. An oversupply of gold means a depreciation of its value in terms of commodities until the point is reached that gold mining becomes unprofitable. This check would become operative long before the world could upheave in economic resolution, but would become decisive hardly before a period of rising prices sufficiently long and uninterrupted to raise still further the level of interest rates.

1549. Influences Tending Toward Increase in Commodities. It goes without saying that the volume of commodities produced will depend upon the available stock and the demand. Apart from increased demand caused by mere increased money and credit, the cheapened cost of production and distribution, of which we spoke above, means that more goods can be produced for the same money. The United States is fully as progressive in economies of production as any nation, and is increasing its store and output of wealth accordingly.

1550. Even in the satisfaction of normal wants, the world's demand has tended constantly to exceed the supply, because of a

constantly increasing population. This is particularly true in the United States, in which immigration augments the natural increase. Furthermore, the spirit of extravagance, "the natural vice," has created in this country abnormal demands which could not be satisfied with our own distributive commodity share, and had to be met by bidding, at abnormally high prices, for which the tariff is responsible, for a part of the shares of foreign nations. Checks upon freedom of immigration, and an awakening national realization of our extravagance, will not retard the increase in commodity production so much as it will direct the energies of production into less wasteful channels, thereby increasing the less destructible stock. The annual output of purchasables might be lessened for a time, but the available stock would be enlarged.

1551. We have every reason to believe the discovery and development of new resources will keep pace with gold. Mr. Frank A. Vanderlip expressed this view in an address before the American Bankers' Association in 1905. He said:

"I do not believe the gold production is likely to become a serious menace. . . . What I do believe is that there is likely to follow just what followed in the two former periods of the world's history when there was an extraordinary production of gold added to the monetary stocks. One of these periods followed the discovery of America, when the treasures of Mexico and Peru were exploited. The other was in the days following the discovery of gold in California and Australia. In each case a mighty impulse was given to the exploitation of virgin fields of development. It seems to me not improbable that the next few years will witness the expansion of the field of commercial enterprise into new places. Countries that are commercially and industrially backward will yield to this new influence. It seems to me that one of the direct and important effects of this great production of gold will be to give an impulse to the development and industrial exploitation of South America, Africa, Asia, and Eastern Europe. At our own hand is South America on one side, and China and Japan on the other. We are rapidly awakening to the commercial possibilities within these countries. If we are to have an influx of gold more than ample to sustain the credit operations for our own domestic affairs, that fact will tend to lead our interests into these new fields of exploitation. Then, in turn, a wider use of credit which these new fields will develop and the increased reserves which that wider use of credit will make necessary, will probably absorb the increasing gold stock into beneficent uses, preventing it from ever becoming a serious menace to business organization."

1552. *The Wall Street Journal* says:

"In the United States alone the water power is estimated at \$1,000,000 horse power, of which only a fraction has yet been utilized. To harness that power and develop collateral resources might easily absorb all of that fearsome gold production we can well lay hands on for the next 20 years. By that time other uses will be found for the precious product. There would appear to be no immediate occasion for alarm over the prospect of being obliged to pay 10 pounds in gold for five pounds of potatoes."

1553. **Conclusion as to the Future of Commodity Prices.** In conclusion, it is the writer's belief, after a study of prices, that the amount

of careful thought and statistical research that has been devoted to the subject is not sufficient to warrant conclusion either that an increased supply of gold has been, during recent years, the chief cause of higher prices in certain quarters of the globe, or that it will be the chief cause of possible still higher prices in years to come.

1554. Many will undoubtedly be surprised to see by the chart XIX that, although the tendency of commodity prices in the United States has been upwards for the past 14 years, there was as pronounced tendency downwards for the preceding 14 years, and present prices are but slightly above the average for the past 50 years.¹ There is nothing alarming, then, or epoch-making, in the present price level, or in the present so-called high cost of living.

1555. In view of the fact that it is material commodities of the sort most affected by congestion of population which, in the main, are the basis of price indexes, it is very significant that in 1860 (which begins the chart of commodity quotations) prices were much higher than at present, and yet the per capita circulation was only \$13.85, whereas now it is \$35.01,—and this in spite of the greater extension of credit made possible to each unit of money by increased facilities for its circulation, and by the increased adaptability of credit instruments. If the mere quantity \$13.85 a man meant too much money, what of \$35.01?

1556. Nevertheless, believing in the quantity theory, and taking into consideration other factors, of which some are mentioned in these pages, the writer thinks that the tendency for some time to come will be toward slightly higher prices, but that we have already discounted a large part of the quantitative effects of the gold supply of the next decade or two.

1557. If this view is correct, there is no reason for diverting funds which are properly destined for investment, into speculative, or semi-speculative channels. The few instances of pecuniary gain that might result from so doing would not compensate for the greater average losses which inevitably attend the assumption of commercial risk.

1558. The Relation of Commodity Prices to Bond Prices. The relation of bond prices to the net interest rate or income (as distinguished from the cash or coupon rate) has been completely canvassed in the chapters on bond mathematics. There remains only to show the relation between commodity prices and interest rates

¹The line marked "8" running from 1866 to 1880 reduces the actual prices for the intervening years to terms of gold.

in general. On this point there is, and has been for a century, no difference of opinion, although misconception among business men who have not given thought to the subject is very common.

1559. Superfluity of gold does not imply lower interest rates. The natural assumption is that the more abundant money becomes, the less useful each unit will be, and therefore the less it will cost, in terms of interest, to borrow money. Indeed this is the first and temporary effect of an influx of gold, from whatever source. The gold naturally first finds its way into bank reserves, and results in comparative money ease. The error in assuming the same lowering of interest rates on long-time loans arises from a confusion of capital, or wealth, with its medium of exchange.

1560. According to the quantity principle, an increase in the money units, or a decrease in their value, does not alter the amount of wealth in the world; does not alter the value of the units of capital.

Suppose 5 per cent. per annum is the difference between the present and the future worth of capital. This means that the business man can be reasonably certain of earning 5 per cent. with real capital. Assume that the money to purchase this capital is borrowed, and at the end of the year is returned, having earned 5 per cent. Assume also that during the year the purchasing power of money has decreased. The lender may actually have been paid only 4 per cent. in purchasing power. He may not, and probably will not, be aware of the disadvantageous situation in which he has been placed. If he is aware he will be unwilling to enter into a new contract for loan except at an interest rate (6 per cent.) that will take into account, not only the earnings to which real capital is entitled, but also the loss in monetary capital through depreciation. Even if unaware, he and his fellow lenders would approximate in their demands the compensation in interest which a depreciating currency makes necessary, because this very depreciation makes the money profits of business much larger than the real profits, and invites increased competition in business activity with increased competitive bidding for capital.

1561. This action of the blind leading the blind has been called the equilibrating action of interest rates. It tends to maintain justice between borrower and lender. In so doing, while money (gold) is appreciating, it tends to lower the interest rate on bonds and other long deferred payments, and therefore to increase their price; but while money (gold) is depreciating, it tends to increase the interest rate and therefore to lower their price.

CHAPTER XL

THE BOND HOUSES

1562. The Bond Business. That part of the public which does not buy bonds has little idea of the importance and value to the community of the bond business. It is not necessary to resort to many figures. It is only necessary to realize that bonds are the chief resource of our government in times of war, of our states and municipalities in furtherance of public works and buildings, of our railroads, of almost all public service corporations and many industrial corporations. In round numbers, \$1,500,000,000 of American bonds are marketed every year and almost all of them pass through the hands of American bond houses. Even those issues of which the ultimate nominal market is the New York Stock Exchange are first offered and sponsored by dealers in bonds. In volume and number the transactions on the exchange are only a mere fraction of those in direct merchandising. Of this \$1,500,000,000 of bonds one-third is absorbed by insurance companies, savings banks, trust companies and other banks (in approximately equal amounts) and the remaining two-thirds by corporations (for reserve, etc.) and by private investors in this country and abroad.

1563. In view of the vast importance of the bond business in the economic life of the country, it is surprising that so little is known about bonds and the bond business. No one who has had experience in selling bonds will deny that the "average man" who has accumulated a surplus is far more conversant with stocks and the basic principles of stock speculation than with bonds and the principles of bond investment. The reason, however, is not far to seek. While human nature remains what it is, the element of chance, with its exhilarating risk, will be more attractive to men than the element of approximate certainty that is arrived at by painstaking, uninspired care. Since the stock market is more interesting and problematical than the bond market to the majority of readers, journalism, in the course of its duty to purvey to the majority,

THE BOND HOUSES

Financial pages with time-honored summaries of
— things, to-day's gossip, and circumspect con-
— grow.

— relatively speaking, the number of people con-
— small through the country at large, it is some-
— and what a large proportion of the well-to-do
— States, which have been educated to bond buy-
— me or other bought bonds. Every Eastern bond
— to have, a list of at least 70 per cent. of all the
— consequence in most cities or towns in New England.
— his list with a list of all persons estimated to be
— more, whether bond buyers or not, will prove the
— bond buying in this section.

— banking houses were not always primarily
— Two generations ago financial business was
— sellers and brokers." Bond selling was an incident
— making, exchange, and brokerage routine. It was
— the counter." There was comparatively little im-
— on the part of the vendor. In the age of Com-
— the elder Gould, Fisk, and Drew the "caveat
— of exchange was accepted and the devil took many
— But now the speculative business in New York,
— notable and consequential, is done by "Members of
— Exchange" and the investment business is done
— in Investment Bonds." Of course, a house
— securities may have a seat on one of the ex-
— accepted and understood that the firm specializes
— of these two forms of business. The financial
— financial temper, and the training necessary to su-
— other occupation have accomplished the severance
— and bond selling.

— functions of the Bond Houses. The primary function
— is to obtain capital for the creation of new enter-
— or enlargement of old. So far as concerns these houses
— respect the capital obtained is in the form of loans.
— the loans outright for their own account and
— As in any sort of merchandising, there are
— and many retailers. The prominent "wholesale"
— numbering less than a dozen, confine themselves for
— as far as American corporation loans are concerned)
— systems. They have few, if any, traveling

representatives. Their sales, in this country, are effected by public subscription, stimulated through extensive advertising, and by distribution to large institutions, such as the insurance companies, and to the smaller bond houses.

1567. Now it is only fair to state that the wholesale international bankers have not been trained by the necessities of the personal relation between client and financial adviser to accept and offer only such securities as they would be willing to keep for their own account. It is not necessary to illustrate, but none of the typical American "retail" bond houses could have the hold many of them do have upon their customers if they had recommended and sold a tithe of the bonds *and stocks* that have been distributed by some of the international bankers. Mere magnitude in the capitalization of a bond house or of an obligor corporation is still a thing to conjure with in America. Financial history does not support the view that there is safety in size. Since the international houses, with special spheres of usefulness, do not best represent the things for which the bond houses stand, and since the contact of private investors is with representatives of the retail houses, this article is concerned only with the latter.

1568. "Retail" is not a term properly descriptive of the firms in mind, although it suggests the relative size of the issues handled and the relative volume of business. It misleads if it suggests that the *main* business of such houses is to distribute among small investors issues that originally were investigated and purchased by "wholesale" houses. This is not the case. For the most part each of the American bond houses buys its issues independently, in accordance with its policy regarding investments, or it buys them in "joint account" with other houses having similar policies. These houses are autonomous; their prosperity is built on their ability to find and obtain, on the one hand, funded obligations that merit investment, and on the other, a clientèle that has faith in them and their business judgment and probity.

1569. The success of the bond houses in weathering financial storms while stock exchange houses have gone down by the score, is strong support of the contention that bond investment rests on a basis of principles reducible to a science. The writer knows of not one important investment house that has failed except through deliberate violation of perfectly well-known investment principles or through equally deliberate fraud. There is no business in all the country that has placed itself on more enduring foundations of

business wisdom, or that is conducted on a higher plane of business ethics.

1570. Enough has been said of the great services of the American bond houses. Without their help it would be impossible to finance American enterprises upon equally favorable terms. By their ultra-conservatism they are establishing themselves in public confidence in a way to bring together with the greatest expedition and least middleman's cost the promoters of our national resources and the creditor class from whom must come the capital necessary to municipal and industrial development. They extend the boundaries of credit and exercise a directive and steadying influence upon enterprise. By preaching the principles of bond buying in advertisements, pamphlets, correspondence, and in personal interviews by bond salesmen they are slowly but surely converting the American people into a nation of investors. It will be worth while to examine in greater detail the several functions they perform.

1571. *The Purchasing Function.* If a municipal loan is offered, the purchase is a comparatively simple matter, provided the municipality is well known to the fraternity. Then no preliminary investigation is required; a bid is made for the loan at the current market rates and acceptance on award is subject to the approval of the bidder's attorney in all respects affecting the validity of the obligation.

If the municipality is not well known to the bidder, a qualified representative will, or should be, sent to learn at first hand the physical and financial condition of the city and to form an estimate of its probable future willingness and ability to meet its present and future obligations.

If a corporation loan is offered, it will probably be submitted at the offices of the bankers by a representative of the company or by a promoter. If the applicant is of a social turn of mind he will probably not lack the company of his kind in the anteroom. Competition, fortunately, is keen.

The first step in the process of elimination (there is more elimination than acceptance) is to discard the propositions of companies that conduct a kind of business unfamiliar to the bankers. Except under unusually favorable circumstances the highest grade of bond houses will not purchase bonds of industrial corporations, mining or irrigation companies, etc.

The next step is to discard loans that have not a claim on property worth, under the most unfavorable conditions, more than the

amount of the obligation secured. Most corporations will bond themselves in as large a sum as their bankers will permit. Loans are continually being rejected because of insufficient equity in property values.

The third step is to discard those propositions which do not give reasonable assurance of earning at all times at least 50 per cent. more than all fixed charges, after making extremely liberal estimates for future increased operating expenses.

The fourth step is to decline loans to companies conducted by men or with methods which do not meet with approval.

1572. If the house is satisfied by interview and correspondence in matters of the above nature, and if a suitable price can be agreed upon, then engineers and accountants may be sent to the plant and offices to make a thorough examination; and the members of the firm, with counsel, meet officers of the company and their attorneys to settle the matters of form. On acceptance of an issue a careful banking house may demand representation on the directorate of the company until such time as the company shall have discharged its bonded obligation.

1573. Illustrating the care with which properties are examined, the writer recently had occasion to inspect an interurban line in Pennsylvania and incident to mileage cost of construction inquired in jest the number of ties between the terminal and a certain city some miles distant. "We don't know," replied one of the owners of the road, "ask your engineer, Mr. ———. He has photographs of every foot of the line and can count the ties for you, but probably he has already counted them."

1574. There is a difference in the degree of care exercised by various houses. The ultra-conservative will not permit their names to be associated with "construction propositions." They will consider for purchase the obligations of only seasoned companies with established earning power.

The reactionary effect of the stringent requirements of bond houses is of inestimable benefit to corporation finance, but its good influence has a wider sphere; it embraces municipal corporations and municipal finance. American bond houses have put municipal bond buying on an entirely different plane from what it was in 1875. In this they have been helped by, and have helped, the development of municipal bond law. In these days cities and towns that have had much experience placing bonds will be certain in advance of their advertisements for bids that the loan has been issued in conformity

with the exacting requirements of the bond attorneys. Certain strong Canadian houses command such respect in their country that they have been able to direct the legislation of the Western provinces to the end that the Western loans may be more acceptable to the investors in the Eastern provinces and in England.

1575. The Advisory Function. This advisory and directive function is more prominently operative in bond selling than in bond buying. It has its source in the statistical departments which every house of quality must maintain. It finds its chief expression, as already stated, in tabloid investment lessons, printed in the advertising columns of newspapers and periodicals, or with somewhat greater fullness in pamphlets and monographs. If a prospective client has an investment policy that is apparently not suited to his particular needs, the home office may tactfully direct his attention by letter or through their representative in his territory to a means by which he may better his position. Some bond houses maintain a daily news sheet for the benefit of their salesmen in which are printed not only pertinent items of current interest, but timely discussions of different problems.

Activities of this nature, developed to their logical conclusion, can lead to only one result, the establishment of the American bond houses in the confidence of the public as their chief advisers in financial matters, in some such relation as the great banks of France and Germany bear to investors in those countries. Even now a few of the better houses can count upon the absorption by their friends among institutions and investors of a certain amount of any issue they recommend and offer.

This advisory function can become general and economically sound only as the bond houses as a class recognize the *scientific* and *professional* nature of their calling and guide their movements and policies, as do the governors of the Bank of England, let us say, alive to the power of their position and their responsibility as repositories of a nation's confidence.

1576. The Banking Function. Illustrative of the relation between house and client, there has arisen the demand that banking departments be established for the safe keeping of funds destined, upon enlargement, to go into investment, and also to accommodate those who wish to purchase securities before they have sufficient funds to pay in full for them. From the necessities of these two situations it is only a short step to the conduct on a small scale of a bank of deposit subject to check. But properly and ordinarily,

the banking department of a bond house is conducted as a matter of accommodation to its customers and not primarily to do a general banking business. From these beginnings it sometimes has happened that a full-fledged bank has been evolved, in which the savings, deposit, and trust functions of the bank have balanced, nominally at least, the sales function of the bond house, but an exception of this sort would only prove the rule. Although bond houses are banks, technically, and are entitled to their common designation, "bankers," nevertheless, on the principle that security selling is not best undertaken by obligor companies but is properly left to the bond houses which make it a profession, so the general banking business is best left to banks proper.

1577. Bond houses which do business in New York State (and that, of course, includes the principal houses of the country) were recently threatened with a handicap in the accommodation of their customers by the new state law requiring private banks in which the deposit accounts for the previous year average less than \$500 cash to give a heavy bond and exhibit a detailed statement of their condition or, in lieu of the statement, deposit with the state a considerable fund in securities. Of course this law was aimed at the private bankers with whom the foreign element of our population is accustomed to deal, and in the main it is good. Although it will be an inconvenience to some bond houses, it is to be welcomed as another element of strength in the financial system.

1578. **The Bond Houses as Fiscal Agents.** Because of purchasing, advisory, and banking functions bond houses are called upon to act as fiscal agents for corporations, municipalities, and even states. The long standing, friendly banking relations of the older firms with the Western cities recall the fact that interest, and sometimes the principal, of the loans of these cities is payable at the offices of the bond house. Here and there an Eastern institution is met that will not buy Western municipals which are not payable in the East. This is not so much to save the cost of conversion into New York funds, for that might be arranged in the price, as because of the inconvenience and possible loss of interest in shipping the bonds west for collection. Some of the older bond houses act as depositories for Western cities. In general, the conduct of the bond houses as fiscal agents has merited the trust placed in them.

1579. It is natural that private corporations will look to the bond houses as their financial agents. The disposition of a com-

pany's funded loans is not merely a matter of merchandising; it is natural that the relationship begun by the purchase of bonds and banking representation on the directorate shall be continued indefinitely in the thought of future financial needs. Just as the great railroad systems have their long established financial connections with certain large houses, so the public service and other private corporations form alliances with the bond houses. The continuance of such relations implies conformity on the part of the obligor corporations with the policy of the bond houses. This also tends toward a betterment of financial conditions throughout the country.

1580. The Selling Function. American banking houses are not eleemosynary. Whatever may be their usefulness in the community, it is the result of that enlightened self-interest which used to be expressed in the phrase "Honesty is the best policy." Their reason for being is to make money by selling bonds, and the competition is getting keener every day. Many of the ordinary effects of competition are noticeable in the bond business. There is standardization of wares and policies, there is diminution in ratio of profits. But two ordinary effects of competition are conspicuously absent. There is no deterioration of the product and no tendency toward consolidation among the vendors.

1581. The relation of supply and demand for securities is totally different with us from what it is in England or France. Our industrial development more than keeps pace with our investment resources. We are less dependent on foreign capital than ever before, but not so rich that funds awaiting conservative employment have not a choice of excellent opportunities at home.

By reason of this very competitive bidding by capital the quality of our loan product offered by good bond houses is not cheapened. In the process of soliciting business by advertisement and interview, American investors are becoming educated in investment principles and reward with most patronage the houses that give the best evidence of living up to investment ideals. It is the same in this as in the legal and medical professions. It pays best in the long run to be technically competent.

1582. Since the principal point of contact between investors and banking houses is through traveling representatives whose advice is followed to a very material extent by investors, the salesmen sent out are of more than average intelligence and business ability. The large majority of those representing the better concerns are college-bred men. The alert sales manager will keep in touch with the col-

leges and universities and will seek to obtain for his firm men of the graduate schools or of the graduating class who give promise of ability in salesmanship not only by their record in college activities but by their appearance and address. Most of these men will serve office apprenticeships of length before they are sent out on the road.

1583. The other effect of competition that we mentioned as lacking is the tendency toward consolidation. The absence of it is further evidence of the peculiarly professional relation which subsists between the banking house in its advisory capacity and the client. It raises bond selling from a business to a profession.

1584. There are some who profess to see in the gradual evolution of the bond business a tendency to relinquish direct selling from house to client through traveling salesmen in favor of distribution, on a commission basis, through local independent bankers. This may come. If it should, it would be one of the evil effects of competition. It would relieve the "retail" houses of a large part of that sense of personal responsibility which they now feel. They would be in a position analogous to that of the wholesale houses at present. Investors would have to accept offerings from those who had no part in the investigation which preceded the original purchase of the issue, and who, presumably, would not have the capital or organization of distribution to "protect the market" for the benefit of those who might wish subsequently to sell their securities.

1585. **The Protective Function.** There is a radical difference in the attitude of bond houses in this matter of repurchasing securities of clients to whom they have sold them. Some take the stand that a sale is a sale, and the responsibility of a house that has acted in good faith ceases upon delivery of the bond and the receipt of payment. This position is logical and just, but again competition steps in to benefit the customer. Other houses say: "We shall put out our issues as nearly as possible on a plane of marketability with active listed securities. We make no promises, but, except in times of panic when it may be impossible to raise money to satisfy everybody, we hope and expect to be so situated as to buy back at the fair market price the securities we have sold." The substance of this statement is now occasionally seen in advertisements over the signature of a few of the better and stronger houses. Few investors realize the full significance of this protective market policy. They are inclined to remember that they may buy most of the active listed bonds on the exchange and sell them the same day at an

average total loss, due to the "higgling of the market," of perhaps only 2 points or so. They do not realize that on a declining bond market they may have to take an additional loss, in listed bonds, of say 8 points, or 10 points in all, whereas in the same circumstance a bond house would think twice before quoting a client a price 10 points below the previous selling price. And, to say nothing of investment guidance, nine times out of ten the issue of the bond house is yielding at least $\frac{1}{2}\%$ more per annum than an equally sound listed issue.

1586. But the protective function of the bond house is most important in respect to the moral responsibility of "seeing clients through" default, reorganization, and rehabilitation in the extremely rare cases in which trouble arises. In some instances losses amounting to hundreds of thousands of dollars have been made good; in many instances the firms have volunteered to pay interest which has been suspended; in every case a reputable bond house will feel called upon to take the active leadership, at its own expense, in upholding the mortgage rights or other legal claims of the bondholders.

With the enlightened aid of bond houses the creditor class will do well to take as much pains in the investment of its wealth as in the acquisition of it. Buyers of corporation bonds should exercise almost as much care in the selection of a financial adviser as in the choice of a security. They should seek a bond house with a strong personality, strong convictions on investment matters, and the capital and equipment to back them up.

APPENDIX

THE GAMBLE IN "GOVERNMENTS" BY NATIONAL BANKS

By W. H. LYON

Professor of Finance, Tuck School, Dartmouth College

(Reprinted from *Moody's Magazine*, March, 1911.)

1587. We had on January 1, 1911, the largest amount of banknotes outstanding in our history—\$727,980,000. Why? Not because business demands that condition. Gauged by bank clearings business for 1910 showed a small but real recession from 1909 amounting to something over 1 per cent. In the face of declining business banknote circulation has shown a very substantial increase of over \$17,600,999, or $2\frac{1}{4}$ per cent. Again, why?

1588. People do business on credit and for cash. Frequently by "cash" we mean immediate payment, and by "credit" we mean deferred payment. A nicer use of the words, however, indicates something a little different. We may put through a credit transaction and at the same time have immediate payment. If both parties to a transaction are business men they carry it out, unless it is very small, without using the circulating medium we commonly call cash, but with checks, or notes, or drafts. The check makes essentially immediate payment, yet entirely a credit transaction. If the parties are not both business men, or if the transaction is very small they carry it out by the exchange of cash. Even though the payment be deferred, it is in our present sense a cash transaction.

If the total volume of business in a community increases, each of these two divisions will increase. Though they may not advance in the same proportion, each, nevertheless, will grow larger. So, as business increases, the community needs at the same time more credit and more cash.

1589. Banknotes properly used satisfy both needs. As between the parties they are cash; as between either party and the bank they are credit. The notes are credit, then, in all transactions to which the bank is party and cash between all other parties.

So we may say that banknotes properly serve two purposes—they extend credit and they extend the circulating medium. Any expansion of business requires the extension of both. A single phrase perhaps defines the banknote better than any further statement can. It is a circulating credit.

1590. Our circulating credit doors creak. When banks buy bonds direct from the Government to issue against they must withdraw just as much circulating medium as they put out in notes. Since Government bonds regularly sell at a premium, they withdraw even more "cash" than they restore. Real increase in the circulation can come only as the Government pays out the proceeds in the regular course of its expenditures. Even when the Government turns round and deposits the proceeds with the banks pending expenditure this does not add to the circulating medium, for the banks must then buy more Government bonds to secure the deposits. Such depositing only adds another cog to the process.

If the banks buy Government bonds outstanding in the hands of investors to issue notes against they do immediately increase circulation. Funds paid for the bonds do not take anything out of circulation, and the new notes go immediately into the hands of the public. But at the time of the panic in 1907, of the interest-bearing debt of the United States amounting to \$894,834,280, the banks already held \$774,732,297. Imagine the position of the banks going out to buy up Government bonds to any reasonably adequate amount to issue circulation. The total possible supply was only a little more than \$100,000,000. And Government bonds do not yield enough for dealings as a speculative security in large floating supply. Owners hold them for very definite reasons and cling to them tightly. Bankers buying in any considerable quantity would sharply bid up on themselves the price of the comparatively few available.

1591. So much for the part our notes can play in extending circulation. Though the service may be so hampered as to be largely unavailing, our notes in a way can perform it. But the notes cannot directly extend credit at all. To procure the means of purchasing bonds the banks must first contract credit as much as they subsequently expand it. As far, however, as the notes make possible the withdrawal of gold, or its reserve equivalent, from hand to hand circulation and its use as a reserve to base comparatively non-circulating credits on, they serve their credit expansion purposes as well as any notes.

1592. Whether our notes when issued serve their purpose well or ill, conditions of issue are such that our bankers cannot work with an eye single to the needs of the community and are not sure of receiving compensation for service rendered. Our entire business of banknote issue takes on the form of a gigantic speculation in the Government debt. Our 2s of 1930 declined from 110½ in October, 1902, to 100.75 in January, 1911. Allowing for the loss of about 3 points due to the eight years nearer maturity, this is a decline of 6½ points—a shrinkage of \$42,000,000 on the issue. Before that they had risen from 103½ when first put on the market in July, 1900, to the 110½ in October, 1902, an advance of nearly 7 points in two and one-quarter years (adding a difference of about one-fifth due to approaching maturity), an increase of \$45,200,000 on the issue.

1593. What is the point of all this? When a banker takes out currency he engages in two distinct transactions and enters upon two different hazards. In one transaction he assumes the risk and holds the expectation of greater profit from taking out circulation. Since buying bonds and taking out circulation most of the time shows some theoretical profit over loaning direct, presumably if there were no other consideration, most of the time our bankers would keep outstanding all the notes they could. In the other transaction, however, the banker engages in a speculation in Government securities. As a matter of fact, if the price of Government bonds advances, the profit from taking out circulation declines; but our banker is pretty likely to view with equanimity the declining circulation profit when he considers the profit he is making in his speculation in bonds. On the other hand, as the price of Government bonds declines, circulation grows more profitable. The banker is likely to view this with sour satisfaction when he looks on his loss in his bond speculation. Profit or loss in the bond speculation is likely to outbalance loss or profit in the circulation transaction.

1594. Let us examine the case more closely. Just what is the profit or loss from taking out circulation? In the first place the bank gets the regular current money rates on the loans it makes through issuing notes. Also it gets the interest on the Government bonds it buys. This, of course, means the real interest, or income on the investment, called basis, taking into consideration coupon interest, price paid and date of maturity. Excepting for the tax of ¼ per cent. on the circulation taken out (1 per cent. if taken out on the 3s or 4s) and for the expenses attendant on taking out circulation,

which the Government actuaries compute to average \$63 on the \$100,000, this interest on the Government bonds looks like clear "velvet." It would be, too, if the banker did not have to pay more for the bonds than the amount of circulation he can take out against them. To figure his net profit, he must deduct from the gain items just stated what he would have made if he had loaned his funds direct instead of investing in bonds.

1595. Expressed as an algebraic equation the situation becomes much clearer. Let

x = current money rate;

y = basis rate at which Government bonds are bought;

z = price of Government bonds;

b = circulation received (\$100,00 used as basis of calculation);

c = taxes, redemption, and other circulation expenses.

(As already stated Government actuaries have calculated that circulation expenses average to cost the banks \$63 on the \$100,000 of circulation taken out. Taxes depend on whether the 2s, in which case the tax is $\frac{1}{4}$ per cent, or the 3s or 4s, in which case the tax is 1 per cent., are bought. Taxes, then, amount to either $b(.01)$ or $b(.005)$. We can take b as a constant in our calculations and base all our computations on taking out \$100,000 of circulation.)

1596. The equation of profit or loss on taking out circulation then reads:

$$yz + bx - xz - c = \text{profit or loss.}$$

But circulation taken out (b) can never be greater than the amount of money paid for the bonds (z), because if the market price of bonds should decline below par the Comptroller would compel the deposit of additional bonds sufficient to bring the market value of the total bonds on deposit up to the amount of circulation taken out.

1597. If Government bonds should be at par or at a discount, the nominal profit would always be just the basis interest on the bonds, less the tax and the cost of taking out circulation, or a constant advantage in the case of the 2s of 1.437 per cent.

For the purpose of this discussion we will consider only the 2s of 1930. Of the total Government debt of \$913,417,490, the amount now in 2s is \$676,250,000 (figures of June 30, 1910). Out of \$679,545,740 bonds held by banks to secure circulation the amount in 2s

is \$649,507,130 (October, 1909, Comptroller's report). Out of the total 2s outstanding the amount of the issue due April, 1930, is \$646,250,150. These figures will justify our basing the discussion on this particular issue.

In the regular case, then, the money paid for the bonds (z) is greater than the amount of circulation received (b). With that statement in mind we can draw certain very definite conclusions about our circulation direct from the equation we have formed; z is greater than b .

Repeating the equation in order to have it directly before us:

$$yz + bx - xz - c = \text{profit or loss.}$$

Then as the current interest rate (x) increases, if all the other quantities remain constant, the negative influence in the equation grows greater, or profit from circulation decreases. We can, then, make definitely:

STATEMENT 1

1598. If all other circumstances remain the same, circulation grows less profitable as the current money rate advances.

That is the first criticism of our banknotes. As business increases and the demand for both credit and money increases, as reflected in the rising interest rates, taking out circulation *ceteris paribus*, with the inexorability of a mathematical law becomes less profitable.

Further, there is an intimate relationship between y and z . If the price of bonds (z) declines, the basis rate (y) must advance. As a matter of fact as z declines yz grows greater. If, then, x remains constant and z declines the influence of the negative quantities of the equation is growing less. Then follows:

STATEMENT 2

1599. As the price of bonds declines, if the current rate remains constant, the profit from taking out circulation increases.

That gives the absolute mathematical basis for such general statements as that "the price of bonds is too high to make circulation profitable."

These two facts set out in Statement 1 and Statement 2 place the banker who has taken out circulation between the devil and the

deep blue sea. If the price of bonds remains the same and the current interest rate rises, his circulation grows steadily less profitable. A decline in the price of bonds affords the only offset to an increasing interest rate. But if the price of bonds declines enough to offset the advance in the current interest rate, the banks must mark off enough profits to cover the loss on the capital value of the bonds.

1600. Speculating in securities is no proper part of a bank's business. It is an anomalous situation that in order to fulfil a proper function of note issue a bank should have to undertake such an improper speculation. A bank takes its normal hazard in the risks of the current money market. It makes its regular profit in what it receives for credit (interest on its loans) over what it pays for credit (interest on its deposits) plus the cost of management. This hazard of the money market the bank must undertake in order to do business at all. If the bank takes out circulation it does not avoid this hazard, for it must put out its notes on a loan, but it adds a new hazard, that of a decline in the price of its bonds.

1601. How does speculation in securities work out in some particular instances? Commonly we have an increased demand for both credit and the circulating medium in the fall to "move the crops," and this increased demand makes itself known in rising money rates. In order to work out our equation we must take some value for x , the current money rate. Since the banks make more than one class of loan any particular money rate will not represent the facts. The report of the Comptroller for 1909 states the per cent. of the classes of loans for all the national banks: demand 27.3 per cent., time, secured by stocks, bonds, etc., 20.6 per cent., two name paper 33.2 per cent., single name paper 18.0 per cent. To get some money rate fairer for our purpose than any single rate we will take a plain average of the New York call, 60 day, and prime paper. In New York City demand loans amount to 42 per cent. Perhaps such a plain average as we are taking comes a little nearer for New York and the New York rate than for the country at large.

For 1900 and 1901 this average rate does not show any sharp increase in the fall, so we will pass over these years as not indicating any clear demand for an extension of credit and currency. In September, 1902, however, the average money rate went to 7.38 per cent. Suppose a banker in response to this apparent need had taken out circulation at that time. Taking the average price of the

2s of 1930, he paid for his bonds 109, securing an income of 1.58 per cent. In February, 1903, the average money rate fell to 3.91 per cent., an indication that the country no longer required the added currency. During the intervening period the current money rate averaged 6 per cent. The banker had made a nominal gain in taking out currency of .6 of 1 per cent. Obeying the indication of the lower interest rate the banker prepared to retire his circulation and to sell his bonds. The market, however, presented him with a price (average) of 108.25, a loss, including 1-16 commissions, of $\frac{1}{2}$ per cent. in five months, or at the rate of 2.1 per cent., making a net loss of 1.5 per cent., or in dollars an actual loss of \$625 in five months on \$100,000 circulation.

On October 1, 1902, total circulation stood at \$366,993,598. By February 28, 1903, the amount outstanding was up to \$382,198,845.

Average money rate went up again through March and April, but in May fell to 3.8 per cent. At that time in the year an advance is improbable till fall. If our banker had not sold his bonds, however, in February and taken his loss then, he would in May have faced a still further decline in the bond price to an average of about 106.25, two points more in two months, an increase in his loss of nearly \$2,000 more. Circulation instead of declining had risen (May 31) to \$406,443,205. Nominal profit on taking out circulation by this time, on account of the decline both in price of bonds and the current interest rates, had increased to 1.53 per cent. Those who had circulation could not retire it without converting their book or quotation loss into an actual loss taken, and those who did have circulation could make more money than ever in taking it out.

In the fall of 1903 the regularly expected rise in the current interest rate took place. Average rate rose from 4.4 per cent. in September, through 5.2 per cent. in October, to 5.7 per cent. in November. Average price bonds in November was 106.75, a basis of 1.68 per cent. Indicated profit in taking out circulation under these conditions amounted to .835 per cent. The average money rate lasted for two months and fell to 3.71 per cent. in January, 1904. By that time the average price of bonds had fallen to less than 105, a decline of 1.75 points in two months. This is a loss at the rate of 10.50 per cent., a net loss of 9.67 per cent.; or, in terms of cash, a loss of \$1,600 in two months on \$100,000 circulation. As might be expected circulation continued to increase, and by January 31, 1904, had reached \$426,857,627.

Money rates remained steadily low from January, 1904, to November, 1905, averaging 3.25 per cent. In November, 1905, the average rate went up to 6.66 per cent., with price of bonds 103.25. Money remained fairly high to May, 1906. If a banker had taken out circulation for that period he would have made an advantage of .55 per cent. on his circulation, and might have sold out his bonds at 103.75, a half point advance, and made a total profit of one point, or 2 per cent.

Next September, 1906, average money rate rose to 7.7 per cent., and was fairly high till April, 1907, when it declined to 4.08 per cent. Bonds were selling at 104.75 in September and 106.25 in April. The banker would have made .9 per cent. on circulation and 1.5 points profit on his bonds, a total of 2 points, or 4 per cent. advantage in the circulation transaction.

For the panic year 1907, average interest rate rose in October to 8.92 and averaged 9.87 till February, 1908, when it fell to 3.75. Bonds in October, 1907, were 105.50 (average), 1.70 basis, and in February averaged practically the same. So a banker taking out circulation during the panic for the first time neither would have made or lost on his bond speculation. The nominal advantage in taking out the currency was a small enough gain considering the hazard of the bond speculation.

1602. In all these transactions the speculative hazard on the bonds far outweighs in importance any question of need for circulation and relative profitableness of it.

Enough has been said to show that every currency transaction of a bank is essentially two transactions, one the legitimate banking business of note issue, relatively unimportant as compared with the other transaction, the speculation in the Government debt. With the particularly uncertain elements entering into the price making of the bonds, circulation may perhaps not improperly be called a gamble in "Governments."

INDEX

INDEX

(The references are to section numbers)

- Accrued interest, 1324-1330; as a source of inaccuracy in the bond tables, 1289.
- Ada County, Idaho, 498.
- Adjustment bonds, nature of, 321, 665.
- Advertisement, omission or insufficiency of, as a source of illegality in municipals, 657.
- Advisory function of the bond houses, 1575.
- Age of a city as affecting its credit, 691.
- Alabama, in financial difficulties, 391; in default, 396, 397.
- Albany, N. Y., high credit, 689.
- Allegheny County, Pa., bonds, 478.
- American bond market, the, 78.
- American Telephone and Telegraph Co. bonds as undigested securities, 174.
- American Tobacco Co. Debenture 6s and 4s, protection for, 187.
- Amortization and accumulation, tables or schedules of, 1380 et seq.
- Amortization, of street railway bonds, 1035; of state bonds, 448; of timber bonds, 1183-1187; of water company loans, 1098, 1099; table showing methods by which it is accomplished, 240.
- Annexation, in relation to statistics of population, 585; of counties, 489-495.
- Anticipation tax warrants, 289.
- Apache County, Ariz., 498.
- Application, of bank discount to bond transactions, 1314-1321; of the bond formulas, 1313.
- Appreciation, as a speculative and an investment virtue, 56; as affected by premium and discount, 58; bonds versus mortgages, 153, 154; of real estate debentures, 1136; of water power bonds, 1123; stocks versus bonds, 84-86.
- Appropriations to railway reserve, 854.
- Approximate synchronism of stock and bond price movements, 1436.
- Arkansas in default, 397.
- Arreage bonds, nature of, 306.
- Assessed valuation, of cities and towns, 546-556; of counties, 473, 475; of states, 433-438; of tax districts, 727.
- Assessment of stock as affecting security of principal, 65.
- Assignment of street railway franchises, 1034.
- Assumed bonds, legal position, 209.
- Assumed guaranties, 205.
- Atchison, Topeka, and Santa Fe, Adjustment 4s of 1995, 321; equipments in receivership, 937.
- Atlanta, Birmingham, and Atlantic equipments in receivership, 958.
- Attitude of the states toward their present debts, 412 et seq.
- Attorneys for bond houses, 649, 681.
- Aurora, Elgin and Chicago, 1017, 1038.
- Austin, Tex., Refunding bonds of 1931, 339.
- "Average maturity" of serial issues in relation to their cost, 1365, 1366.
- Bangor and Aroostook, analysis of freight traffic, 768, 769.
- Balance sheet of railroads, 863, 875-890.
- Balloting, irregularity in, the cause of illegality in municipal issues, 656.
- Baltimore and Ohio, equipments in receivership, 940; Pittsburg, Lake Erie, and West Virginia 4s, 138.
- Bank clearings in relation to national development (with chart), 1423.
- Bank deposits, as demand loans, 99; convertibility of, 43.
- Bank discount in bond transactions, 1314-1321.
- Bank statements as an index of credit, 444.
- Bank stocks, New England, marketability of, 170.
- Banking and currency measures, effect of, on prices of United States bonds, 366-367.
- Banking attitude toward listed and unlisted bonds, 166, 167.
- Banking function of the bond houses, 1576, 1577.

(The references are to section numbers)

- Banknote circulation, basis of, 1545.
 Banknotes, nature of, 1589.
 Bankruptcy of railroads, mortgage priority in, 894-897.
 Baring Bros.' inquiry of Daniel Webster, 410.
 Basis of assessed valuation for cities and towns, 548; of investment value, as income, 1374-1376; of municipal debt limitation, 634.
 Bearing of speculation upon investment security, 1400-1403.
 Bibliography of railroad bonds, 746, note.
 Birmingham, Ala., financial difficulties, 542.
 Blanket mortgage steamship bonds, 970.
 Blanket railroad mortgages in relation to equipment obligations, 903.
 Bond attorneys, 649, 681.
 Bond business, the, 1562 et seq.; as a science, 13-15; the financing of the, 1455.
 Bond buying, 11.
 Bond default, see Default, Repudiation, etc.
 Bond, definition of, 186.
 Bond Houses, The, Chap. XL, 1562 et seq.; as an investment exchange, 170-172; as fiscal agents, for states and municipalities, 1578; for corporations, 1579; as protectors of interest payments, 129; the chief selling function of the, 62.
 Bond issues of one fixed duration, in reference to the use of the bond tables, 1331 et seq.
 Bond prices, charted, 1429, 1430; in relation to commodity prices, 1558-1561; in Relation to the Trade Cycles, Chap. XXXVIII, 1431 et seq.; movements slightly anticipate stock movements, 1437; recovery after a panic, 1448-1449; the two general factors in the advance of, 1425.
 Bond recital, the, in relation to the estoppel, 679.
 Bond security, railroad, as affected by priority of claim, 891-897.
 Bond selling, 10.
 Bond tables (see also Extended bond tables); The Use of, Chap. XXXV, 1322 et seq.; miscellaneous, 1373.
 Bonds, hypothecary value of, 48; history of, 4, 5; of optional duration, 1369-1372; of Tax Districts, Chap. XIX, 711 et seq.; versus Mortgages, Chap. VI, 112 et seq.
 Bonus bonds, nature of, 290.
 Book value in the accountancy of investments, 1377.
 Boston Terminal 3½s, 259.
 Bridge bonds, nature of, 256.
 British consols, 353.
 British railroad credit, 804.
 Brooklyn bonds have prior claim on Brooklyn taxes, 572.
 Buffalo, N. Y., good credit, 689.
 Buffalo and Susquehanna equipments in receivership, 959.
 Buffalo, Lockport, and Rochester, 1014.
 Buffalo, Rochester, and Eastern, 1014.
 Buncombe County, N. C., 500.
 Business and per capita wealth (with charts), 1420-1428.
 Business cycle, the, 1442 et seq.
 Butte, Mont., School District No. 1, 742.
 Buying bonds, 1.
 Cabell Co. (W. Va.) Court House and Bridge bonds, 342, note.
 Cairo, Ill., in default, 686.
 Call loans (see Demand loans), uses and rates, 93.
 Callable bonds, 342-344; 625-629; how to compute the price and net yield of, 1369-1372.
 Canada, see the provinces by name.
 Canadian Pacific Land Grant 3½s, 249.
 Canadian Power Co., competition, 1116.
 Canadian provinces requiring special legislative sanction for municipal debt incurrence, 645.
 Canadian restrictions on the duration of municipal debt, 667.
 Canadian specific municipal bond taxes, 535.
 Canadian validation of municipal issues, 676.
 Cape Girardeau, Mo., in default, 686.
 Capital Account of Railways, Chap. XXI, 855 et seq.
 Capitalization and earnings of water companies, 1089, 1090.
 Capitalization, in the railroad balance sheet, 881-890; of street railway companies, 1022-1026.
 Car trust association stock, 910-912.
 Car trust bonds, distinguished from car trust certificates and equipment bonds, 913.
 Car trust certificates, 908-912; definition of, 223.
 Carey Act irrigation projects, 1225-1241.
 Carload, the, 780.

(The references are to section numbers)

- Cash, meaning of, 1588 et seq.
 Cash surrender bonds, 346, 347.
 Cass County, Ind., bonds, 490.
 Certification of validity of municipal bonds by states, 670-676.
 Central Railroad and Banking Co. of Georgia equipments in reorganization, 934.
 Certificates, of beneficial interest, nature of, 229; of indebtedness, nature of, 188.
 Certification and supervision of municipal issues by trust companies, 669.
 Channels of Investment, The, Chap. V, 87 et seq.
 Character of traffic in railroad analysis, 768-770.
 Charlestown Real Estate 4s, 248.
 Chart Table, see List of Charts, p. xv.
 Chart, of the curves of investment value, 1387; of the equity in serial (equipment) bonds, 962; of business and per capita wealth, 1420-1428; of national development and resources, 1414 et seq.; of population and production, 1415-1419; of security prices, 1429-1430.
 Charter bonds, nature of, 291.
 Chattel mortgages in relation to equipment obligations, 904, 905.
 Chesapeake and Ohio equipments in reorganization, 933.
 Chicago and Alton First Lien $3\frac{1}{2}$ s of 1950, 260; Refunding 3s of 1949, 260.
 Chicago and Eastern Illinois Refunding 4s, market for, 171.
 Chicago and Northwestern Sinking Fund 5s and 6s of 1929, 101.
 Chicago, Burlington, and Quincy, Illinois Division $3\frac{1}{2}$ s, market for, 171; sinking funds, 839.
 Chicago, Cincinnati, and Louisville equipments in receivership, 950.
 Chicago, City of, World's Fair bonds, 606.
 Chicago City Railway fares, 1032; franchises, 1028; First 5s as redeemable bonds, 1369, note.
 Chicago, Milwaukee, and St. Paul Debenture 4s, protection for, 187; Terminal 5s of 1914, 259.
 Chicago Sanitary District, 743.
 Chicago Southern equipments in receivership, 956.
 Chicago Terminal Transfer 4s, 259.
 Cincinnati, Hamilton, and Dayton equipments in receivership, 947.
 Circulation, bank, see the entire Appendix, 1587 et seq.; equation of profit or loss on, 1595 et seq.; of banknotes, basis of, 1545; of uncovered paper in the world in 1907, 1543; per capita in relation to national development (with chart), 1421, 1422; inelasticity of, a mechanical source of panics, 1547; in relation to interest rates, 1598 et seq.; tax on national bank circulation, 1594; velocity of, 1498 et seq.; 1521, 1522.
 City and Town Bonds: Municipal Assets, Chap. XVI, 512 et seq.; Municipal Liabilities, Chap. XVII, 590 et seq.; Validity and Good Faith, Chap. XVIII, 647 et seq.
 City statement, the, 518.
 Civil loans, nature of, 179; in the classification table, 183.
 Class legislation in relation to legality of municipal issues, 656.
 Classes of cities, 516.
 Classification and Description of Bonds: According to the Character of the Obligor, Chap. VIII, 176 et seq.; table of, 178; According to the Security for the Bonds, Chap. IX, 183 et seq.; According to the Purpose or Function of the Issue, Chap. X, 288 et seq.; According to Conditions Attending Payment of Interest or Principal, Chap. XI, 318 et seq.
 Classification of investment, by the nature of the interest, 89; by the contract of redemption, 90-111.
 Clearings in relation to national development (with chart), 1423.
 Coextensive cities and counties, 510.
 Coextension of political divisions as affecting the debt limit, 598-600; of tax districts and towns, 566.
 Coinage, proportion of world's gold that is coined, 1506.
 Collateral, see Hypothecation, etc.
 Collateral income bonds, nature of, 228.
 Collateral, investments as, 46-48.
 Collateral mortgage, bonds, nature of, 224; notes, 223.
 Collateral or hypothecary value as a price factor of municipals, 698.
 Collateral security, see also Paper collateral security.
 Collateral trust bonds, nature of, 217 et seq.
 Colorado and Southern acquired by the Chicago, Burlington, and Quincy, 780.
 Columbus and Hocking Coal and Iron First 5s, 119.

(The references are to section numbers)

- Columbus, Hocking Valley, and Toledo equipments in receivership, 944.
- Commercial and Financial Chronicle, Railway and Industrial supplements, 759.
- Commercial drafts, 97.
- Commissions, listed versus unlisted bonds, 172.
- Commodities, definition of, 1496; in the price equation, 1523 et seq.
- Commodity prices, in relation to bond prices, 1558-1561; conclusion as to future of, 1553.
- Community of railroad interest, 754, 755.
- Company, distinguished from corporation in England, 179, note.
- Comparisons of assessed valuations of cities and towns, 549-553; of county debt, 481; of municipal tax rates, 525-531; of state valuations, 437.
- Competition in respect to water power supply, 1116, 1117; in water supply, 1081; of interurbans and railroads, 1003-1006; of oil and electricity with gas, 1042-1047.
- Components of assessed valuation, 438; in cities and towns, 544.
- Compromise bonds, 665.
- Conclusion as to the future of commodity prices, 1553.
- Conditional sale plan of purchasing railroad equipment, 906-907; in Pennsylvania, 914-917.
- Conditions affecting the supply of water power, 1107-1112; the water power demand, 1113 et seq.; the drinking water supply, 1071; the drinking water demand, 1082, 1083.
- Connecticut, history of her early debt, 384; the recording of equipment mortgages in, 905.
- Consolidated mortgage bonds, nature of, 270, 277.
- Consolidated railroad mortgages in relation to equipment obligations, 903.
- Consols, 353.
- Constitutional debt restrictions, 413.
- Constitutional law and state debt, 371-376.
- Construction bonds, nature of, 292.
- Construction estimates for water powers, 1112.
- Contingent debt, of cities and towns, 594, 595; of counties, 480, 482.
- Continued bonds, nature of, 293.
- Contracts and franchises of water companies, 1092-1097.
- Contracts of water power companies with consumers, 1118.
- Control, proprietorship, and management of railroads, 750-756.
- Convertible collateral trust bonds, nature of, 221.
- Convertible issues, nature of, 348-352.
- Convertibility (see Marketability), nature of, 41-45; aided by speculation, 44; as affected by denomination, 152; of bank deposits, 43.
- Corporate debentures in the classification table, 183.
- Corporate stock, 36, Note 3.
- Corporation bond buying by the bond houses, 1571.
- Corporation loans, nature of, in England and America, 179.
- Corporation notes, nature of, 190.
- Corporation stock in England, nature of, 188.
- Cost (see also Price), of bonds, 1380; of gas, 1045.
- County Bonds, Chap. XV, 463 et seq.
- County debt, 477-484.
- County repudiation, 497-506.
- Coupon bonds, nature of, 325.
- Credit balances as demand loans, 92.
- Credit, meaning of, 1588 et seq.
- Criminality in relation to municipal loans, 668.
- Cuba, see Republic of Cuba.
- Cumulative income bonds, 320.
- Currency bonds, 332.
- Current assets in the railroad balance sheet, 880.
- Current expense bonds, 665.
- Current versus uncurrent bonds, 164.
- Curve of bond prices in elevation and depression, 1459-1466.
- Curves of Investment Value, chart of, 1387.
- Cycles of trade, 1442 et seq.
- Debenture income bonds (see also Income bonds), 191-194.
- Debenture mortgage bonds, 286.
- Debenture stock in England, nature of, 188.
- Debentures, in default, legal remedies of bondholders, 187; in the classification table, 183; nature of, 184-187.
- Debt limitations and restrictions, city and town bonds, 629-640; of counties, 484; New York City, 612; as affecting validity 666; in state constitutions, 413.
- Debt (see also Net debt, Real net debt, Legal net debt, General debt, etc.) of cities and towns, 590 et seq.

(The references are to section numbers)

- Decimal approximation as a source of inaccuracy in the bond tables, 1290.
- Decline in gas rates, 1059, 1060.
- Deductions from gross corporate income of railroads, 831-840.
- Deepwater Tidewater Railway bonds as notes, 190.
- Deer Lodge County, Mont., 498.
- Default and repudiation, the distinction between, 400; of state debts, 377 et seq.
- Default, American bond, as borne by Europe, 12; freedom from care in, bonds versus mortgages, 149; of debentures, legal remedies of bondholders, 187; on guaranteed bonds versus default on debentures, 208; on municipal bonds does not mature the principal, 36; on municipal mortgage bonds usually entails foreclosure, 578; on "specialties," attitude of the bond houses toward, 1586.
- Deferred bonds, nature of, 339.
- Deficiency bonds, 666.
- Degree of municipal debt limitation, 635.
- Delaware and Hudson, equipment loan due, 1922, 964; trolley purchases, 1014.
- Delaware, history of her debt, 385.
- Delinquent tax certificates, nature of, 294.
- Demand loans (see Call loans), 91.
- Demonetization of silver in various nations, 1486.
- Denomination, as affecting income, 55; as an investment quality, 53-55; bonds vs. mortgages, 151, 152; of real estate mortgage bonds, 1144; stocks versus bonds, 83.
- Density of traffic, 777, 778.
- Denver and Rio Grande equipments in foreclosure and reorganization, 932.
- Deposits, see Bank deposits.
- Depreciation, of gold as a check upon its production, 1548; of rolling stock and serial payment of the equipment bonds, 960-963.
- Depreciationists, their argument, 1529.
- Derivation of the bond formulas, 1293 et seq.
- Desert Land Act, 1203.
- Detroit, Toledo, and Ironton, Ann Arbor Collateral Trust Notes, 220; equipments in receivership, 949.
- Development of national resources, 1412 et seq.
- Differences between discount price and basis price for bonds, 1318-1321.
- Difficulties of studies in bond prices, 1404-1410.
- Dillon, Judge, on the mortgage claim of the municipal bonds of New England, 573.
- Disadvantages of irrigation bonds, 1238-1240.
- Discount and premium as affecting appreciation, 58.
- Discount bonds, nature of, 176, 332.
- Discount, nature of, 1271.
- Discounting bonds, 1314-1321; having two or more coupons attached: i.e., running over six months, 1320, 1321.
- Disincorporation of municipalities for the purpose of repudiation, 687.
- Disposal of net corporate railway income or surplus, 850-854.
- Distinction between steam and electric securities, 1016, 1017.
- Distribution, of municipal issues as a price factor, 695; of money and commodities, 1533-1537; of risk applied to state and municipal bond security, 456, note; of risk as affected by security denomination, 152.
- District debt, 733.
- District statement, the, 719.
- District tax, 719-721.
- Dividend and interest disbursements of street railway companies, 1024.
- Dividend bonds, nature of, 332.
- Dividend yield, the factors determining, 1268 et seq.
- Dividends, mathematical qualities of, 1255-1260; on American railroad stocks, 35, note.
- Divisional bonds, nature of, 252; versus "parent company" bonds, 216.
- Dock bonds, nature of, 257.
- Drainage area for water power supply, 1108.
- Drainage bonds, classified, 295; nature of, 1242 et seq.
- Drainage districts, 716.
- Duluth, Minn., in default, 686, 740.
- Duration (see also Serial bonds), and appreciation of real estate debentures, 1136; as a factor of net yield, 1273; as a factor of safety to beneficiaries, 124; as affecting price fluctuation, 1407-1410; as an investment quality, 52; bonds versus mortgages, 150; computed for bonds redeemable at a premium, 1372; computed for bonds redeemable at par, 1371; of interest interval, effect on bond prices, 1357-1361; of loans as affecting current value, 33; of municipal loans, 667; of street rail-

(The references are to section numbers)

- way franchises, 1028-1031; stocks versus bonds, 82.
- Early weaknesses of irrigation bonds, 1196-1200.
- Earning Power and the Income Account of Railroads, Chap. XXI, 783 et seq.
- Earnings, of gas companies as affected by hard times, 1067; of steamboats in relation to the bonds, 987-990; of water companies, 1089, 1090.
- Eastern interurban development: saturative, 1007-1014.
- Economic development of the gas industry, 1047-1052.
- Economic function of the county, the, 467.
- Effect of hard times on gas companies, 1067.
- Electric railway bonds, see Street railway bonds.
- Electrification of steam roads, 1015.
- Elements of successful operation in the gas industry, 1053-1064.
- Eleventh Amendment and state debt, 373.
- Eligibility of leasehold mortgage bonds for national banks, 1151.
- English railroad credit, 804.
- Equal annual instalment bonds, 337.
- Equal instalment bonds, 337.
- Equalized valuation of states, 434.
- Equation, of price, 1493 et seq.; of profit or loss on circulation, 1595 et seq.
- Equilibrating action of interest rates, 1561.
- Equipment bonds or notes, chart of the equity in, 962; definition of, 234; distinguished from car trust certificates and car trust bonds, 918-922.
- Equipment mortgage statutes, 921.
- Equipment of railroads, character and condition of, in railroad analysis, 771-774.
- Equipment Trust Obligations, Chap. XXIII, 899 et seq.; see also Equipment bonds, etc.
- Equities for steamship bonds, 971.
- Equity, in American real estate mortgages, 116; in serial (equipment) bonds, chart of, 962.
- Erie Railroad, common stock, 158; efficiency, traffic, and securities, 855; First Consolidated Prior Lien 4s, 261; sinking funds, 837.
- Escanaba (Mich.) Waterworks Co. bonds, default of principal, 1099.
- Estimates, of construction for water power, 1112; of population, 583.
- Estoppel and the bond recital, 679.
- Etymology, the development of personal property as indicated by, 3.
- Evasion of the municipal debt limit, 646.
- Exemption, from care as an investment virtue, 51; from tax, as an investment virtue, 49.
- Express companies, classification of, by the Interstate Commerce Commission, 180.
- Extended bond tables for schedules of amortization and accumulation, 1392.
- Extended bonds, nature of, 293, 340.
- Extension bonds, nature of, 253.
- External loans, nature of, 176.
- Extravagance as a cause of high prices, 1550.
- Factor of Safety, 841-849.
- Factors of net return, 1268 et seq.
- Fair Income Return, nature of, 38-40.
- Farm mortgage bonds, nature of, 250.
- Federal irrigation, 1201-1207.
- Ferry bonds, nature of, 257.
- Fifteen year charts, the, how constructed, 1433, 1434.
- Fifty Year Course of Bond Prices, Chap. XXXVII, 1400 et seq.
- Financial competency in relation to municipal loans, 515 et seq.
- Financial Graphic Co.'s charts, 1433.
- Financial history of equipment trust obligations, 930 et seq.
- Financing methods of street railways, 1026, 1027.
- Fire hazard, in relation to timber bonds, 1179-1182.
- First and consolidated mortgage bonds, nature of, 272.
- First and refunding mortgage bonds, nature of, 267.
- First bond formula, derivation of, 1295-1311.
- First consolidated mortgage bonds, nature of, 273.
- First general mortgage bonds, nature of, 276.
- First lien and general mortgage bonds, nature of, 275.
- First mortgage bonds, nature of, 264.
- First mortgage trust bonds, 227.
- First refunding mortgage bonds, nature of, 266.
- First Repudiation Period, 388-394.
- Fiscal agents, bond houses as, for states and municipalities, 1578; for corporations, 1579.

(The references are to section numbers)

- Fixed charges of railroads, 831-840.
- Fixity of interest or income, 34-37.
- "Flat" price for bonds, 1325-1327, 1330.
- Floating debt, as affecting legal net debt, 605, 606; of cities and towns, 591, 592.
- Florida, default on state debt, 388, 394, 397, 403, 410.
- Foreclosure, by railroad bondholders, 894-897; in default of interest on municipal mortgage bonds, 578; of waterworks bonds, 1097, 1098.
- Foreign trade as a factor in national development (with chart), 1421.
- Formulas for deriving bond values, 1293 et seq.
- Founders' bonds, nature of, 296.
- Fourteenth amendment and state debt, 372, note.
- Franchises, of street railways, 1028-1034; of water companies, 1092-1097.
- Free rental value of money, 39, 40.
- Freedom from care, as an investment virtue (see Exemption from care), 51; bonds versus mortgages, 147-149; stocks versus bonds, 81.
- Freight density, 777, 778.
- Freight trainload, 781, 782.
- French rentes, 353.
- Fuel gas, 1048, 1049.
- Functions of the bond houses, 1566 et seq.
- Funding bonds, nature of, 297.
- Future amount of a present sum, how found, 1298, 1299.
- Future, of Bond Prices, Chap. XXXIX, 1476 et seq.; of commodity prices, conclusion as to, 1553; of irrigation bonds, 1241; of levee and drainage district bonds, 1251, 1252.
- Galveston, Tex., good faith and adjustment of debt, 687.
- Gamble in "Governments" by National Banks, The, Appendix, 1587 et seq.
- Gambling, Speculation, and Investment, Chap. II, 17 et seq.
- Gambling, nature of, 19.
- Gas Company Bonds, Chap. XXVI, 1041 et seq.
- Gas bonds as high grade securities, 1065-1069.
- Gas companies not public service corporations, 1068.
- Gas engines, development of, 1049.
- Gas rates, relation of, to population, 1055.
- General and first mortgage bonds, nature of, 275.
- General first mortgage bonds, nature of, 275.
- General mortgage bonds, nature of, 274, 277.
- General tax, states without, 429.
- Georgia Pacific equipments in reorganization, 934.
- Georgia, State of, certification of the validity of municipal issues, 672; in default, 397; sued by a citizen of North Carolina, 373.
- Gillette, Col., in default, 690.
- Gold bonds, 332, 333.
- Gold depreciationists, their argument, 1529.
- Gold, in proportion to the world's credit currency, 1515-1516; in proportion to the world's "money proper" stock, 1512-1514; in proportion to the world's total metallic money, 1507; in the price equation, 1502-1520; increasing annual output of (with chart), 1482 et seq.; production checked by gold depreciation, 1548; supply in effect upon security in liquidation, 1403.
- Good faith, as a factor of municipal security, 682-688; of counties, 496-505 of tax districts, 738.
- Government bonds (see also United States bonds), in the classification table, 178; income from, 39; The Gamble in "Governments" by National Banks, Appendix, 1587 et seq.
- Grading of municipalities by population, 516.
- Grand list, the, 546.
- Green County, Ky., 504.
- Greenbacks as demand loans, 92.
- Gross corporate income of railroads, 830.
- Guaranteed bonds, nature of, 202-208; versus debentures, relative legal position in default, 208.
- Guaranteed mortgages, 121-123.
- Guaranteed stocks in relation to fixity of income, 36.
- Guaranty as affecting security, bonds versus mortgages, 121-124; of equipment obligations by railroads, 909; of principal distinguished from guaranty of interest, 206, 207; joint, 210.
- Guaranty security, nature of, 197, 198; table of bonds classified under, 183.
- Hallett's decision on priority of equipment payments, 924.

(The references are to section numbers)

- Hartford, Conn., high credit of, 689.
 Heinz's table of commodity prices, 1535.
 Helena, Ark., in default, 686.
 Helena, Mont., illegal warrants, 687.
 Henderson County, N. C., repudiation, 503.
 Hereditary tendencies in finance, 404.
 High rate bonds, 329.
 High yield bonds, 330.
 Hinsdale County, Col., 504.
 Hire of railroad equipment, 794.
 History, of bonds, 4, 5; of equipment trust obligations in reorganization and foreclosure, 930 et seq.; of state debt, 370 et seq.; of street railway traffic, 995 et seq.; of the national debt, 357.
 Holding companies for gas concerns, 1068.
 Homestead law, 1202.
 Houston, Tex., in default, 686.
 Hudson and Manhattan Company First Mortgage $4\frac{1}{4}\%$, 221.
 Hudson Companies Convertible (collateral) 6s of 1910 and 1911, 221.
 Hydro-electric power bonds as a descriptive title, 1102.
 Hypothecation (see Collateral, etc.) of bonds by the issuing company, and the legal effect on the bonds when sold, 315.
 Hypothecary or collateral value as a price factor of municipals, 698; bonds versus mortgages, 143, 144; listed versus unlisted securities, 79; of investments, 46-48; stocks versus bonds, 79.
 Ideal Investment, The Elements of an, Chap. III, 30.
 Illegality (see Invalidity); the cause of the rejection of \$4,000,000 of civil loans in 1907, 653; the causes of, 654.
 Illinois, default on state debt, 388; repudiation of railroad aid bonds, 659; special assessment drainage district bonds, 731.
 Implied power of taxation, for special assessment bonds, 723; to support municipal loans, 539-540.
 Importance, of modern gas management, 1064; of size and population served, in the gas business, 1054-1057; of the gas industry, 1041; to street railways of territory served, 1036-1038.
 Improved Property Holding Co., New York, 6s, 1269, note; 1310.
 Improvement bonds, nature of, 298; sometimes special assessment bonds, 724.
 Improvement mortgage bonds, nature of, 284, 285.
 Inaccuracies in the determination of the bond tables, 1283-1292.
 Incidence of the mortgage, table of bonds classified under, 183.
 Income Account of Railroads, Chap. XXI, 783 et seq.; items of, 786.
 Income, as affected by "artificial" market conditions, 38; as affected by denomination, 55; as affected by taxation, 49, 50; as the basis of investment value, 1374-1376.
 Income bonds, 320.
 Income from mortgages diminished by fees, 136.
 Income ratio of railroads, 886-888, 890.
 Income return, bonds versus mortgages, 133-141; stocks versus bonds, 74; American railroad and industrial stocks, 75; urban real estate, 135.
 Increasing annual output of gold (with chart), 1482 et seq.
 Indexes of commodity prices, 1535.
 Indiana, default on state debt, 388.
 Indianapolis School District bonds, 744.
 Indorsed bonds, nature of, 198, 199.
 Industrial and miscellaneous bonds in the classification table, 178.
 Industrial stocks, American, average return from, 75.
 Influence of the bond houses on American finance, 1574.
 Influences, tending toward increase in the volume of commodities, 1549-1552; toward lower prices, 1542; toward the absorption of the gold supply, 1543.
 Instantaneous reinvestment, the lack of, as a source of inaccuracy in the bond tables, 1288.
 Institutional demand as a price factor of municipals, 696.
 Insurance and rental, as factors of loan income, 39; of capital as components of interest, 103, 104.
 Insurance as a channel of investment, 110.
 Insurance contracts, marketability of, 42; hypothecary value of, 47.
 Insurance demand for state bonds, 457, 458.
 Insurance in favor of steamship blanket mortgage bondholders, 973; of "single boat" bondholders, 985, 986.
 Interboro Rapid Transit Co. fares, 1032.

(The references are to section numbers)

- Intercepting sewer bonds, 308.
- Interchangeable bonds, 326.
- Interest and dividend disbursements of street railway companies, 1024.
- Interest as rental plus insurance of capital, 103, 104.
- Interest interval as a factor of net yield, 1273.
- Interest intervals, irregular, effect on bond prices, 1357-1361.
- Interest on American railroad bonds, 35, note.
- Interest payments, mathematical qualities of, 1261 et seq.; regularity of, 129.
- Interest rate, significance of, 329, 482, 628; perpetuity of, 130; on the sinking fund, 1276-1282, 1284-1286, 1305-1309.
- Interest rates, equilibrating action of, 1561; in relation to national bank circulation, 1598 et seq.
- Interest, security of (see also Stability of income), 34-37, 125-132, 1400-1403.
- Interim certificates and bonds, 299, 313.
- Interminable loans, see Perpetual loans.
- Internal loans, nature of, 176.
- International and Great Northern equipments in receivership, 951.
- Interpretation of the schedules of amortization and accumulation, 1382.
- Interstate Commerce Commission, attitude on railway valuation, 858-874; reports, 758.
- Interurban, centers, 998, 999; railways, 996-1014.
- Investment, The Channels of, Chap. V, 87 et seq.
- Investment value, income as the basis of, 1374-1376.
- Invalidity (see Illegality, Validity, Legality); remedies of, 668.
- Investment capitalization of railroads, 888.
- Investment characteristics of street railway bonds, 1039.
- Investment, distinguished from speculation, 27-29; nature of, 23.
- Investment principle for street railway bonds caveat emptor, 1016 et seq.
- Investment return of equipment obligation, 966-968.
- Investment value, of bonds, 1460; of state bonds, 456-460.
- Investments, as loans, 31, 32; classified by the contract of redemption, 90-111; classified by the nature of the interest, 89.
- Iowa's excellent financial record, 392.
- Irredeemable loans (see Perpetual loans and Interminable loans), 345.
- Irregular initial and terminal interest periods, effect on bond prices, 1357-1361.
- Irrigation bonds, 1195 et seq.; in the classification table, 178.
- Irrigation District bonds, 1210-1214; mortgage security for, 732.
- Jefferson County, Wash., default in good faith, 505.
- Jeffersonville, Ind., refunding of an illegal issue, 687.
- Jersey City sinking fund investments, 615.
- Jevons' tables of commodity prices, 1535.
- "Joint and several" bonds, 212.
- Joint bonds, nature of, 211, 212.
- Joint facilities in the railway income account, 834.
- Jointly guaranteed bonds, 210.
- Judgment bonds, nature of, 300.
- Junior issues, 263.
- Kansas City and Memphis Railway and Bridge bonds, 256.
- Kansas City, Pittsburg, and Gulf equipments in receivership, 945.
- Keeler on the quantity theory, 1533.
- Keeping of Investment Accounts, The, Chap. XXXVI, 1374 et seq.
- Keokuk, Ia., in default, 686.
- Lackawanna and Wyoming Valley Railroad, 1016.
- Laclede Gas Company immune from rate regulation, 1068.
- Lake County, Col., 504.
- Lake Shore Railroad, First Mortgage 3½s, market for, 171; in interurban competition, 1003.
- Lake Street Elevated 5s, market for, 174.
- Land and water rights and the law, in relation to irrigation bonds, 1198-1200.
- Land grant bonds, nature of, 249.
- Land title, for private irrigation projects, 1223; in Carey Act irrigation projects, 1233, 1234.
- Latah County, Idaho, 499.
- Lawrence County, S. D., default in good faith, 505.
- Lawrence, Kas., in default, 686.
- Lease and lease warrants in relation to car trust certificates, 908-912.
- Leasehold mortgage bonds, 1147-1151.

(The references are to section numbers)

- Leavenworth, Kas., in default, 686.
 Legal history of equipment trust obligations, 902-929.
 Legal net debt of cities and towns, 601-612.
 Legal opinion of a Chicago firm as to the tax-exemption of territorial municipalities, 700.
 Legal principles of the mercantile marine applying to steamship bonds, 976.
 Legal tender bonds, 332.
 Legality (see also Validity), of municipal obligations, 647-681; of municipalities guaranteed by Texas, 453.
 Legislative sanction required for municipal debt incurrence, 645.
 Levee bonds, 1242 et seq.
 Levee districts, 716.
 Liabilities of states that offset wealth in credit, 445.
 Lien, on personality, nature of, 216; on realty, nature of, 245.
 Lien security, nature of, 213-215; table of bonds classified under, 183.
 Life of loans, see Duration.
 Listed bonds, and marketability, 41; the number of transactions in (1910), 160; true market for,—not on the exchanges, 171; used in the charts, tables of the, 1470, 1477; of states, 158.
 Listed quotations, unreliability of, 173, 174.
 Listed versus Unlisted Bonds, Chap. VII, 156 et seq.
 Listing, in relation to hypothecary value, 166; in relation to net income, 168.
 Listing of bonds, the, as facilitating transactions, 162; in relation to marketability, 163; in relation to negotiability, 159; in relation to security, 158.
 Listing of stocks, 170.
 Lists of states, see State and States.
 Little Rock, Ark., in default, 686.
 Loan of municipal credit, 640.
 Loans, demand, 91.
 Local causes for the increase in commodity prices, 1538-1541.
 Local demand as a price factor of municipalities, 696.
 Location of railroads as affecting statistical considerations, 761-763.
 Logarithms applied to equations of present worth, 1304.
 Long term bonds, 338.
 Louisiana, in default, 397; repudiation of state bonds, 662.
 Louisville and Nashville First Collateral Trust *Sec* of 1931, 227.
 Low rate bonds, 329.
 Low yield bonds, 330.
 Lumber (see also Timber) business, the, 1152 et seq.
 McGregor, Ia., in default, 686.
 Macon County, Mo., persistent repudiation, 501.
 Maine, history of her early debt, 384.
 Maintenance items, railroads, 795-812.
 Maintenance, of railroad equipment, 797, 801-803, 811, 812; of way and structures, 796, 802, 807-810.
 Management, history, and earnings of lumber companies, 1188-1190.
 Management of railroads, 756; of steamship companies in relation to the bonds, 977; of street railway companies, 1023, 1026, 1027, 1038; of water companies, 1092-1096.
 Margin and factor of safety, 841-849.
 Margin of safety in equipment bonds (including diagram), 960-963.
 Market and yield, of gas bonds, 1069; of irrigation bonds, 1240.
 Market factors of state bonds, 457-460.
 Market, for levee and drainage district bonds, 1250; for municipal versus state bonds, 406; for United States bonds, 360, 361; for unlisted bond house "specialties," 158; for water power, 1114 et seq.
 Market value in the accountancy of investments, 1378, 1379.
 Marketability, see Convertibility and Negotiability, also Current versus uncurrent bonds.
 Marketability, and income of timber bonds, 1191; and investment value of water power bonds, 1124; as affected by size of issue, 163; bonds versus mortgages, 152; in relation to listing, 163; of insurance contracts, 42; of loans, nature of, 41-45; of the great railroad refunding issues, 163; stocks versus bonds, 76-78.
 Maryland, history of her early debt, 385, 386.
 Massachusetts $3\frac{1}{2}\%$, 158; net yield, 355.
 Massachusetts Board of Gas and Electric Light Commissioners, annual reports of, 1053 et seq.
 Massachusetts, history of her early debt, 384; state credit, 419.
 Massachusetts savings banks, average dividend rates, 1280; methods of bond accountancy, 1377.
 Material assets, of cities and towns, 518; of counties, 460 et seq.

(The references are to section numbers)

- Mathematics of Bond Values, Chap. XXXIV, 1253 et seq.
- Maturity of loans, see Duration.
- Memphis, Tenn., in default, 686; repudiation, 740; school bonds of 1937 secured by mortgage, 576.
- Metropolitan, cities, 584; counties, 568; districts, 743.
- Michigan, default on state debt, 388.
- Michigan savings bank law in relation to steamship bonds (text), 981.
- Mileage in railroad statistics, 764-767.
- Mill Stocks, New England, marketability of, 170.
- Milwaukee Gas Light and Power Co. First 4s, 138.
- Minneapolis and St. Louis First Consolidated 5s, 118.
- Minneapolis sinking fund investments, 616.
- Minnesota repudiation, 395.
- "Miscellaneous investments" in the railroad balance sheet, 879.
- Miscellaneous items in the railway income account, 854.
- Mississippi, default on state debt, 388, 393, 400, 403, 410, 416.
- Missoula Park County, Mont., 498.
- Missouri decision on priority of equipment payments, 926.
- Missouri default in interest, 396.
- Missouri, former attitude toward repudiation, 685, 686.
- Missouri Pacific First and Refunding 5s, 267.
- Missouri River as a water supply, 1108.
- Mobile, Ala., Funding bonds of 1882, 576; in default, 686.
- Modern equipment trust deed, 928, 929.
- Montana, indication of recent good faith, 421.
- Montreal Light, Heat, and Power Co., 1103; competition, 1116.
- Mora County, N. M., 491.
- Mortgage claim of the municipal bonds of New England, 573.
- Mortgage collateral trust bonds, 226.
- Mortgage debentures, 287.
- Mortgage guaranty companies, the fees of, 137.
- Mortgage incidence, table of bonds classified under, 183.
- Mortgage income bonds, nature of, 278.
- Mortgage priority, discussed, 260; in railroad issues, 892-897; table of bonds classified under, 183.
- Mortgage security, for city and town bonds, 571-581; for irrigation district bonds, 732; for tax district bonds, 731.
- Mortgages, Bonds Versus, Chap. VI, 112 et seq.; denomination of, 151, 152; equity in American real estate mortgages, 116; freedom from care of, 147-149; hypothecary value of, 48, 143, 144; income, 133-141; diminished by fees, 136; marketability, 142; security of interest, 125-132; security of principle, 113-120; tax exemption of, 145, 146.
- Muhlenburg County, Ky., 504.
- Municipal bond price movements in relation to listed railroad bonds, 1406 and note.
- Municipal bonds, default on does not mature the principal, 36; proper, in the classification table, 178; tax exempt within their states, 704, 705, 707.
- Municipal buying by the bond houses, 1571.
- Municipal corporations proper, 512, 513; counties, real debt of, 478, 479; debt, 590 et seq.; division of tax secured bonds in the scheme of bond classification, 463-466; loans in the classification table, 178; mortgage bonds in the scheme of bond classification, 246; ownership of water companies, 1093-1096; real estate as municipal assets, 564, 565; versus corporation mortgage bonds, priority of claim, 579-581; versus rural counties, 506-507; water bonds, 567-570; water bonds secured by realty, 246.
- National bank demand for United States bonds, 361.
- National banks, as clearing houses of credit, 1452; eligibility of leasehold mortgage bonds for, 1151; The Gamble in "Governments" by, Appendix, 1587 et seq.; relative amounts of the various classes of loans in 1909, 1601.
- National debt, history of, 357.
- National Irrigation Act, 1204-1207.
- Nature, of the security for water power bonds, 1105 et seq.; of water power company contracts with consumers, 1118.
- Nebraska City, Neb., in default, 686; Precinct, repudiation, 739, 740.
- Negotiable bonds in the development of bond law, 5.
- Negotiability (see Marketability) of real estate debentures, 1134-1135; of real estate mortgage bonds, 1145.
- Net capitalization of railroads, 885.
- Net corporate income of railroads, 839, 840, 850-854.

(The references are to section numbers)

- Net debt, as affected by sinking funds, 620; as defined by Massachusetts, 604; as related to water bonds, 569; of cities and towns, 601-612; uncertainty of amount of, 666.
- Net dividend yield: perpetual securities, 1255.
- Net earnings of railways, 819-821.
- Net income (see also Income, Net yield, Net returns, etc.), as the basis of investment worth, 60.
- Net Interest Rate, see Net yield, Net income, etc.
- Net operating revenue of railroads, 819-821.
- Net returns (see Net yield, Net income, etc.), nature of, 1254.
- Net yield (see also "To find the net yield of —"), as the basis of investment value, 1374-1376; as the basis of the bond value tables, 1266; factors determining net dividend and net interest yield, 1267 et seq.; in relation to bonds that must be or have been redeemed at a premium, 1269, note, 1310; in relation to serial bonds, 1309; of levee and drainage district bonds, 1248; of real estate debentures, 1133; of real estate mortgage bonds, 1143; of terminable securities, 1261 et seq.; of water power bonds, 1120.
- New England municipal bonds, mortgage claim of, 573.
- New Hampshire, history of her early debt, 384.
- New Jersey, certification of the validity of school bonds, 673; history of her early debt, 385; school district bonds secured by lien, 574.
- New Orleans, La., in default, 686.
- New York Central Railroad equipment loan issued in 1907, 968; Refunding 3½s, market for, 171; the rental item of, 834.
- New York City, bonds, security of and fluctuation in, 1403; debt limit, 612; growth in land values, 1125; sinking fund investments, 616.
- New York, Lake Erie, and Western equipments in receivership, 938.
- New York, New Haven, and Hartford, bonds as notes and debentures, 190; relation of passenger to freight business, 768.
- New York State, credit, 419; history of her early debt, 385, 386; law regarding private bankers who accept deposits, 1577.
- Nez Percés County, Idaho, 489.
- Nominal interest rate, 1272.
- Non-cumulative income bonds, 320.
- Non-dividend paying gas companies in Massachusetts, 1053.
- Norfolk and Southern equipments in receivership, 955.
- Norfolk and Western equipments in receivership, 941.
- North Carolina, in default, 397; State Supreme Court decision in Pitt County versus MacDonald, 420.
- North Dakota certification of the validity of municipal issues, 670.
- Northern Pacific equipments in receivership, 943.
- Notes (short term), cause and purpose, 190.
- Ohio in financial difficulties, 390.
- Oklahoma, certification of the validity of state and municipal issues, 674.
- "One industry" towns in relation to municipal credit, 690.
- Onalow County, N. C., 504.
- Ontario, Can., validation of municipal issues, 676.
- Operated mileage of railroads, 764-767.
- Operation of railroads, statistics of, 775-782.
- Operating and holding companies for gas concerns, 1068.
- Operating expenses of railroads, items of, etc., 794-801.
- Operating income of railroads, 826.
- Operating ratio, of railroads, 818; of water power companies, 1122.
- Operating revenues of railroads, items of, etc., 789-793.
- Optional bonds, 342.
- Optional duration of bonds as affecting price and yield, 1369-1372.
- Optional loans, 88-101.
- Oregon Short Line Refunding 4s, 138.
- Origin of equipment trust obligations, 899-907.
- Origin of timber land bonds, 1158-1161.
- Other income of railroads, 827, 828.
- Output of American bonds per year, 1562.
- Outside operations of railroads, 822, 823.
- Overcapitalization of street railways, 1021.
- Paducah Light and Traction Co. franchises, 1029.
- Paper collateral security, table of bonds classified under, 183.
- Par value of stocks, 66.
- Participating bonds, nature of, 322.

(The references are to section numbers)

- Partition, of counties, 489-495; of states, 494.
- Pass-books as representing demand loans, 93.
- Passenger density, 777.
- Passenger train mileage, 781.
- Passenger trainload, 781.
- Pennsylvania, history of her early debt, 385, 386.
- Pennsylvania (or Philadelphia) plan of issuing equipment paper, 914-917.
- Pennsylvania Railroad Co., Convertible $3\frac{1}{4}\%$ of 1915, short terminal coupon, 1361; diversified ownership of, 1426; primacy of, the reputed cause of, 853; sinking funds, 837; stock of, as an investment, 87.
- Penny-wise street railway financing, 1026, 1027.
- People's Gas Light and Coke Co. Refunding 5s, market for, 171.
- Per capita studies in population, 587.
- Père Marquette equipments in receivership, 947.
- Perpetual or indeterminate bonds or loans, 102-106, 341; net dividend yield of, 1255; definition, 1369.
- Perpetuity of the interest rate, 130.
- Personal property as security, nature of, 216; table of bonds classified under, 183.
- Personal property, in the assessment, 555, 556; its development in etymology, 3; its nature and divisions, 1.
- Philadelphia and Reading equipments in receivership, 942.
- Philadelphia, Pa., high credit, 689; plan of, issuing equipment paper, 914-917.
- Physical characteristics of railroads, 757-762.
- Physical valuation for railroads unfair, 871, 874.
- Pima County, Ariz., 494.
- Pitt's English sinking fund, 617.
- Pittsburg, Shawmut, and Northern equipments in receivership, 946.
- Plain bonds, nature of, 189.
- Plant and business of a water company, 1084-1087, 1091.
- Plant of a lumber company, 1169-1171.
- Planters' Bank bonds of Mississippi, 448.
- Pomeroy, Ohio, repudiation, 684.
- Poor (poor farm) districts, 714.
- Population, as a factor in national development (with chart), 1415-1417; character of, affecting municipal credit, 692; in relation to railroad statistics, 762; of cities and towns, 582-589; estimates of, 583; of states in relation to state credit, 441-443; served, in relation to the gas business, 1054-1057.
- Port of Portland, Ore., as a tax district, 718.
- Portland and Rochester Terminal 4s, 259, note.
- Potential appreciation, see Appreciation.
- Power market (water power), 1114 et seq.
- Power-plant construction, 1110-1112.
- Preference Income Bonds, nature of, 193, 194.
- Preferred stocks in relation to fixity of income, 36.
- Premium, and discount as affecting appreciation, 58; nature of, 1270.
- Premium bonds, nature of, 176, 331.
- Premium redemption as a factor of net yield, 1269, note, 1310.
- Present attitude of the states toward their debts, 412 et seq.
- Present-day irrigation under state law, 1208, 1209.
- Present legal status of equipment obligations, 923-929.
- Present trend of bond and stock prices, 1471-1475.
- Present worth, of a future amount, how found, 1300 et seq.; of interest payments, or coupons, how found, 1302; tables of, as substitutes for formulas and bond tables, 1311.
- Prevalence of bond-buying in North-eastern states, 1564.
- Price equation, 1493 et seq.
- Price factors, in municipal loans, 694; in the better railroad bonds, 898.
- Price fluctuations, of stocks versus bonds, 1435 et seq.; of United States bonds, 362-367.
- Price of bonds, see "Cost of bonds," and "To find the price of —."
- Priority, of claim in railroad bonds, 891-897; of municipal versus corporation bonds, 579-581.
- Prior lien and mortgage security for city and town bonds, 571-581.
- Prior lien bonds, 261.
- Priority of lien or mortgage (see Mortgage priority), 260.
- Private project irrigation bonds, 1215-1224.
- Privilege of redemption or recall for bond issues, 625-629. (See Callable, Redeemable, Redemption, etc.)
- Process of bond issue as a source of illegality in municipals, 657.

(The references are to section numbers)

- Production, as a factor of national development (with charts), 1418, 1419, 1424; of lumber in the United States since 1880, 1152.
- Profit-sharing bonds, nature of, 332.
- Promissory notes, 96.
- Property investment of railroads, 877-880.
- Property, its nature and divisions, 1.
- Property, personal, its development, 1-3. (See also Personal property.)
- Property security, table of bonds classified under, 183.
- Proprietary interest of cities in railroads, 561, 562.
- Proprietorship and control of railroads, 750-755.
- Prospect, of advance in bond prices, 1477, 1478; of decline in bond prices, 1479-1487.
- Protective function of the bond houses, 1585, 1586.
- Providence, R. I., high credit, 689; sinking fund investments, 618.
- Province of Quebec municipal debt limitation, 639.
- Provisional certificates, 301.
- Public service corporation bonds, see Public utility bonds.
- Public Service Corporation of New Jersey stock trust certificates, 341.
- Public utility and railroad commissions as supervisors of street railways, 1017.
- Public utility bonds in the classification table, 178.
- Purchase money bonds, nature of, 302.
- Purchased line bonds, nature of, 254.
- Purchasing function of the bond houses, 1571-1574.
- Purchasing, of corporation bonds by the bond houses, 1571; of municipals by bond houses, 1571.
- Purchasing power of money in relation to fixity of income, 37.
- Pure Income Return, 39, 40.
- Purpose of issue, as affecting the bonds of tax districts, 711-713; as affecting legality of county bonds, 487; as affecting the legality of municipal issues, 659; illegitimate, 640; legitimate for state debt, 414; state bonds, 452.
- Quality of (drinking) water supply, 1075-1081.
- Quantity theory of money, 1488 et seq.
- Quarterly compounding of funds as a factor of net yield, 1287.
- Quasi-county bonds, 482, 483.
- Quasi-municipal corporations, 512, 513.
- Quasi-municipals in the classification table, 178.
- Quasi-state bonds, 455.
- Quebec (Province) municipal debt limitation, 639.
- Quincy, Ill., in default, 686.
- Railroad aid bonds, 498; in Illinois, repudiation of, 659.
- Railroad bonds, American, interest on, 35, note; average interest rate of, 35, note, 138, note; average net return of, 138, note; good convertible issues netting over 4.40 per cent., 138; Proprietorship, Management, and Plant, Chap. XX, 746 et seq.; Earning Power and the Income Account, Chap. XXI, 783 et seq.; Valuation and the Capital Account, Chap. XXII, 855 et seq.
- Railroad capitalization, American, 114.
- Railroad dividends in business depression, 72.
- Railroad stocks, American, average return from, 75; dividends on, 35, note.
- Railroading, general statistics showing importance of, 747.
- Railway trust bonds, 222.
- Raleigh, N. C., Water 6s, 570.
- Range of quality in county loans, 468.
- Range of stock and bond fluctuations, 1467-1470.
- Rapidity of commodity exchange, 1525 et seq., see also Velocity of circulation.
- Rate of interest, significance of, 329, 482, 628.
- Rates for gas, in relation to population, 1055; decline in, 1069, 1060; in relation to profits, 1061-1063.
- Ratio, of loans to deposits varies inversely as average price of listed border (with chart), 1451 et seq.; of railway funded debt to capitalization, 889, 890; of railway income to capital, 886-888.
- Real debt, of cities and towns, 596-600; of municipal counties, 478-479; of rural counties, 480.
- Real Estate Bonds, Chap. XXIX, 1125 et seq.; nature of, 248.
- Real estate debentures, 1130-1137.
- Real estate mortgage bonds, 1138-1146; in the scheme of bond classification, 247; the substitution of collateral in, 221.
- Real net debt of cities and towns, 601, 602.

(The references are to section numbers)

- Real valuation of states in relation to assessed valuation, 436.
- Realty and personality in assessed valuation, 555, 556.
- Realty security, table of bonds classified under, 183.
- Recall privilege for bond issues, 625-629.
- Receivers' certificates, nature of, 195, 316.
- Reclamation Issues, Chap. XXXI, 1192 et seq.; Private Project and Carey Act Bonds, Chap. XXXII, 1215 et seq.; Drainage and Levee Bonds, Chap. XXXIII, 1242 et seq.; in the classification table, 178, 182.
- Record, and future of real estate debentures, 1137; of steamboat bonds of the Great Lakes, 982.
- Redeemable bonds, 342-344; definition and nature, 1369-1372; how to compute price and net yield of, 1369-1372; the privilege of redemption, 625-629.
- Redemption bonds, nature of, 304.
- Referendum in relation to municipal debt incurrence, list of states requiring, 641.
- Refunding and extension bonds, nature of, 253.
- Refunding bonds, county, 486.
- Refunding first mortgage bonds, nature of, 266.
- Refunding issues, 664; as affecting legal net debt, 605; the great railroad issues that are not listed, 163, note; marketability of the above, 163.
- Registered bonds, nature of, 323; coupon bonds, 324.
- Regularity of interest payment, 129.
- Reinforced obligations, nature of, 196; in the classification table, 183.
- Rejection of municipal issues in 1907 because of illegality, 653.
- Relation (see also Ratio), of bond prices to the condition of credit, 1451-1466; of commodity prices to bond prices, 1558-1561; of gas output to population, 1056; of gas rates to population, 1055; of gas rates to profits, 1061-1063; of railroad funded debt to capitalization, 888, 890; of railway income to capital, 886-888.
- Relative position of the various railroad bond issues, 892-897.
- Remedies of invalidity, 668.
- Renewal bonds, 305, 664.
- Rental and insurance of capital as components of interest, 103, 104.
- Rentals in the railroad balance sheet, 882-884.
- Rentals of leased roads in the railway income account, 834.
- Rentes, 353.
- Replacement valuation for railroads unfair, 870, 872.
- Reports of street railways, 1020.
- Republic of Cuba (External Debt) 5s, 102.
- Repudiation and default in War-time, 395.
- Repudiation, does not date back to youth of the Republic, 374; former attitude of Missouri toward, 685; in the Mississippi Valley, 686; of county bonds, 497-505; of railroad aid bonds in Illinois, 659; of state debts, 377 et seq.; Pomeroy, Ohio, 684; ultimate cause, 400-405.
- Requirements of mortgage and deed of trust for timber bonds, 1162-1163.
- Reservoir storage for water power supply, 1109.
- Residuals from gas-making, 1050.
- Residuary estate bonds, nature of, 35, 231.
- Responsibility of power lessees, 1119.
- "Retail" American bond houses, 1567, 1568.
- Revenue bonds or notes, nature of, 306.
- Richmond and Danville equipments in reorganization, 934.
- Richmond Terminal Co.'s reorganization plans in regard to equipments, 934.
- Riddleberger bonds of Virginia, 448.
- Rio Arriba County, N. M., 495.
- Rio Grande Western First 4s, 138.
- Risk, distribution of, as affected by security-denomination, 152; as applied to state and municipal bond security, 456, note.
- Rockford and Interurban, 1017.
- Rockland, Me., Water 5s, 570.
- Rural versus municipal counties, 506-507.
- Rural versus urban districts, 741.
- St. Clair County, Mo., persistent repudiation, 501, 502.
- St. Joseph, Mo., in default, 686.
- St. Louis and San Francisco, General (now First) 5s, 118; five-year 4½s of 1908, a doubly indirect lien, 225.
- St. Louis, Mo., World's Fair bonds, 608.
- St. Louis, Iron Mountain, and Southern, General Consolidated and Land Grant 5s, 118; River and Gulf Division First 4s, 138.

(The references are to section numbers)

- Santa Cruz County, Ariz., 494; water bonds, 677.
- Santa Fe County, N. M., 495.
- "Saturation" of a community with trolley traffic, 1007-1014.
- Sauerbeck's tables of commodity prices, 1535.
- Savannah, Americus, and Montgomery equipments in receivership, 935.
- Savings banks, average dividend rates in Massachusetts, 1280.
- Scale, of Carey Act irrigation projects, 1235; of private irrigation projects, 1224.
- Scallop curve of bond prices, 1459-1466.
- Schedules for bonds bought at "price and interest," 1393-1395; for bonds bought on basis, 1381; for bonds maturing at other than regular interest dates, 1396; for redeemable bonds, 1398, 1399; for serial bonds, 1397; of amortization and accumulation, 1380 et seq.
- School bonds, nature of, 307.
- School district bonds of New Jersey secured by lien, 574.
- School tax, the, 721.
- Science in investment a factor of safety, 1569.
- Science, the bond business as a, 13-15.
- Scope and character of drainage and levee reclamation, 1243, 1244.
- Seaboard Air Line equipments in receivership, 948.
- Second bond value formula, 1312.
- Second consolidated mortgage bonds, nature of, 283.
- Second general mortgage bonds, nature of, 283.
- Second mortgage bonds, nature of, 279-282.
- Second refunding mortgage bonds, nature of, 283.
- Second repudiation period, 397 et seq.
- Secondary income, of cities and towns, 557-570; of counties, 476; of tax districts, 730.
- Secured notes, nature of property pledged, 190.
- Securities Co. of New York 4 per cent. Consols, 102.
- "Securities owned" in the railroad balance sheet, 878.
- Security, as affected by guaranty, bonds versus mortgages, 121-124; for gas bonds, 1066, 1067; of leasehold mortgage bonds, 1148-1150; for levee and drainage district bonds, 1245-1247; for private project irrigation bonds, 1216 et seq.; for railroad bonds as affected by priority of claim, 891-897; for real estate debentures, 1131-1132; for real estate mortgage bonds, 1139-1142; for state debts: Tangible Assets, 427 et seq.; in liquidation, 1403, 1436, 1467.
- Security of Interest (see Stability of income), 34-37; analysis of, 127-130; bonds versus mortgages, 125-132; in mortgages, assured by guaranty, 132.
- Security of principal and interest as affected by speculation, 1400-1403.
- Security of principal, bonds versus mortgages, 113-125; definition of, 30; stocks versus bonds, 64-67.
- Security of state bonds as vested in the issues, 447-450.
- Selling bonds, 10.
- Selling function of the bond houses, 1580-1584.
- Senior issues, 263.
- Serial bonds, 336; in relation to net yield, 1308; to find the price of, 1363-1366; to find the net yield of, 1367, 1368.
- Serial payment, of debt, 621-624; of equipment bonds, 953, 954, 960-963; diagram of, 962; of state loans, 448-450; of steamboat bonds, 984.
- Sewer bonds and sewer trunk bonds, nature of, 308.
- Shawinigan Water and Power Co., 1103.
- Shifting of collateral, 221.
- Short term bonds, 338.
- Short term investment, the leading channels of, 109.
- Short term notes, cause and purpose, 190.
- Shreveport, La., in default, 686.
- Significance of the interest rate, 329, 482, 628.
- Silver bonds, 332.
- Silver, demonetization of, in various nations, 1486.
- Simple obligations, nature of, 184; in the classification table, 163.
- "Single boat" bonds, 979 et seq.
- Sinking fund bonds, nature, purpose, classification and description of, 235-244.
- Sinking fund demand for state bonds, 459.
- Sinking fund payments secondary to other fixed charges, railroads, 832.
- Sinking fund versus serial repayment of state loans, 448-450.
- Sinking funds and serial repayment for timber bonds, 1183-1187.
- Sinking funds, as affecting net debt,

(The references are to section numbers)

- 613-620; for bond amortization, interest rates of, 1276-1282, 1284-1286, 1305-1309; for railway bonds, decline of, 835; for railroad bonds, history and advisability of, 237; for water company bonds, 1098, 1099; in relation to net debt, 620; misappropriation of, for special assessment bonds, 722; of Pennsylvania may be diverted, 448; suspension of payments to, England, United States, Indiana, Pennsylvania, 619; versus serial repayment, 621-624.
- Sioux City, Ia., School District bonds, 744.
- Size and population served, importance of, in the gas business, 1054-1057.
- Soetbeer's tables of gold production, 1503.
- Source of municipal debt limitations, 630.
- South Carolina in default, 397.
- Southern Indiana equipments in receivership, 957.
- Southern Railway common stock, 158.
- Spartanburg County, S. C., 498.
- Special assessment bonds, 483, 722-726; in relation to the power of general taxation, 532; secured by lien in some states, 576.
- Special bond taxes (see Specific bond taxes), 534-540.
- Specific municipal bond taxes, list of states requiring, etc., 534-540.
- Special tax levy for municipals, 658.
- Speculation, as an aid to convertibility, 44; distinguished from gambling, 21; distinguished from investment, 27-29; nature of, 20-26; necessary to security of investment, 1400-1403.
- Springfield, Mass., high credit, 689.
- Springfield, Mass., Gas Light Co., 1064.
- Springfield, Ohio, School District bonds, 744.
- Stability of equities in bonds versus mortgages, 117.
- Stability of Income, 34-37; stocks versus bonds, 68-73.
- Stamped bonds, nature of, 200, 201.
- Standard Oil stock, 158.
- State Bonds, exempt from tax, 80; The History of State Debt, Chap. XIII, 370 et seq.; The Elements of Security, Chap. XIV, 405 et seq.
- State census, list of states having a, 582.
- State certification of the validity for municipal bonds, 670-676.
- State debts, present amounts and nature of, 422-426; present attitude toward, 412 et seq.
- State laws regarding taxation of stocks and bonds, 80.
- States, list of, in which mortgages are tax exempt, 146; in which municipals are tax exempt, 704, 706, 707; limiting municipal debt incurrence, and the degree of limitation, 677; requiring the referendum in connection with municipal debt incurrence, 641; with no bonds outstanding, 423; with no debts outstanding that they recognize, 425; with no "foreign" debt, 424; without general debt limitations, 629.
- Statistical difficulties of studies in bond prices, 1404-1410.
- Statutory debt restrictions to state debt, 417.
- Steam power versus water power plants, 1103.
- Steamship Bonds, Chap. XXIV, 969 et seq.; of the Great Lakes, 980.
- Stevens County, Wash., 498.
- Stock interest certificates, 230.
- Stock of car trust associations, 910-912.
- Stock prices charted, 1429, 1430.
- Stock trust certificates, 230.
- Stocks, the history of, 170; the nature of as affecting security of principal, 64; versus Bonds, Chap. IV, 63 et seq.; watering of, 65.
- Storage reservoir for water power supply, 1109.
- "Straight" bonds, 335.
- Strategic position in railroading, 763.
- Street Railway Bonds, Chap. XXV, 991 et seq.; legal for Massachusetts savings banks, 1018.
- Subjects of bond price study, 1411.
- Subsidy bonds, nature of, 290.
- Substitution of collateral, 221.
- Suit against Georgia, 373.
- Suit of South Dakota against North Carolina, 375, note.
- Suits against states,—states permitting themselves to be sued by private citizens, 375.
- Supervision and certification of municipal issues by trust companies, 669.
- Supplemental assessments for special assessment bonds, 723.
- Surplus of railroads, 839, 840, 850-854.
- Tables of four listed bonds used in the charts, 1477; of present worth as substitutes for formulas and bond tables, 1311; of ten listed bonds used in the charts, 1470; showing the rela-

(The references are to section numbers)

- tive costs of sinking fund and serial repayment of debts, 624.
- Tacoma Gas Light Co. Refunding 5c of 1926, 313.
- Tangible assets of states, 427 et seq.
- Tax arrearage bonds, 306, 310.
- Tax duplicate, the, 546.
- Tax-exempt property, in college towns, 559; in New York City, 558, and note.
- Tax exemption, as a price factor of municipals, 699; bonds versus mortgages, 145, 146; bonds in New York State, new law regarding, 50, note; in relation to investments, 49, 50; of municipals of certain states, 704, 705, 707; of territorial municipals, legal opinion of Chicago firm concerning, 700; stocks versus bonds, 80.
- Tax district, see also District.
- Tax (taxing or taxed) district bonds, 711 et seq.
- Tax limitation, city and town loans, 541-545; of counties, 470-471; of states, 431.
- Tax power, of cities and towns, 532-540; of counties, 470-471; of states, 428.
- Tax rate, of cities and towns, 519, 532; of counties, 472-474; of states, 430.
- Tax receivables, nature of, 328.
- Tax relief bonds, nature of, 306, 311.
- Taxable wealth, see Assessed valuation.
- Taxability of territorial municipals as bank assets, 702.
- Taxation of bonds in New York State, new law regarding, 50, note.
- Taxation, implied power of, for special assessment bonds, 723; to support municipal loans, 539-540.
- Taxes accrued, of railroads, 825.
- Temporary bonds or certificates, 313, 316.
- Temporary debt, as affecting legal net debt, 605, 606; of cities and towns, 591, 592.
- Temporary receipts, nature of, 312.
- Tennessee, encouragement of municipal repudiation, 418; in default, 397.
- Terminable bonds, definition, 1369; net yield of, 1261 et seq.; nature of, 259.
- Terminal Railroad of St. Louis 4s, 259.
- Territorial municipals, debt limitation, 638; legal opinion of a Chicago firm as to the tax-exemption of, 700; taxable as bank assets, 702.
- Territory served in relation to street railway earnings, 1036-1038.
- Texas certification and registration of municipal issues, 671.
- Text-books on bonds, 7.
- Third mortgage bonds, nature of, 279-282.
- Timber and timber values, 1172-1178.
- Timber Bonds, Chap. XXX, 1152 et seq.
- Timber lands, 1164-1168.
- Time loans, 107-111.
- Title "Street Railway Bonds," 991-993.
- To find the net yield at a tabulated price, 1332; the price at a tabulated net yield, 1333; the net yield at an untabulated price, 1334; the net yield at a flat price, 1341, 1342; the price at an untabulated net yield, 1343-1345; the net yield at an untabulated coupon rate, 1346; the price at an untabulated coupon rate, 1347-1349; the net yield at an untabulated duration, 1350-1353; the price at an untabulated duration, 1354; the net yield at an untabulated interest interval, 1355; the price of a bond at an untabulated interest interval, 1356; the price of bonds issued or maturing at other than the regular interest dates, 1357-1361; the price of a serial issue, 1363-1366; the net yield of a serial issue, 1367, 1368.
- Toledo, St. Louis, and Kansas City equipments in receivership, 936.
- Topeka, Kas., in default, 686; Water Works Purchase 4s, 570.
- Topeka Water Co. 5s, 570.
- Torrance County, N. M., 495.
- Total net revenue of railroads, 824.
- Township bonds of Cass County, Ind., 480.
- Trade cycle, the, 1442 et seq.
- Traffic, character of, in railroad analysis, 768-770.
- Traffic density, 777, 778.
- Traffic, transportation and general expenses of railroads, 813-817.
- Trainload, the, 779, 781, 782.
- Transportation bonds, as a security class, 180; in the classification table, 178.
- Transportation expenses of railroads, 815-817.
- Transportation ratio, the railway, 817.
- Trolley bonds, see Street railway bonds.
- Trust certificates, 230.
- Trust company supervision and certification of municipal issues, 669.
- Trust deed for modern equipment bond issues, 928, 929.
- Trust fund demand for state bonds, 459.

(The references are to section numbers)

- Twenty-year page of the bond tables, sample, 1322.
- Two kinds of Real estate bonds, the, 1126-1129.
- Unconditional interest, bonds of, as a class, 319.
- Uncovered paper, amount in the world in 1907, 1543.
- Underlying bonds discussed, 262 et seq.
- Unfunded debt as affecting legal net debt, 605, 606.
- Unifying mortgage bonds, nature of, 277.
- Union Electric Light and Power Co. (St. Louis) First 5s, 138.
- Union Pacific equipments in receivership, 939.
- United Railways of St. Louis franchises, 1030.
- United States Bonds, Chap. XII, 353 et seq.; market for, 171.
- United States Steel corporation, diversified ownership of, 1426; First Collateral Trust 5s, 296.
- Unlisted bonds, see also Listed bonds, Listing, etc.
- Unlisted stocks versus bonds, their marketability, 77.
- Unreliability of some listed quotations, 173, 174.
- Unsecured obligations, weakness of the term, 184.
- Urban street railways, 995.
- Urban versus rural municipalities, 540.
- Use of the Bond Tables, Chap. XXXV, 1322 et seq.
- Validation of municipal issues by courts and legislatures, 677.
- Validity, illegally issued bonds not necessarily invalid, 488; of district bonds, 734; of county bonds, 485 et seq.; of municipal obligations, 647-681; state certification of, 670-676; of state bonds, 451-455.
- Valuation of railways, Chap. XXI, 855 et seq.
- Vanderlip, on gold production as a menace, 1551.
- Variations in form or plan of equipment obligations, 964.
- Variety of kinds of street railway bonds, 994.
- Velocity of circulation, 1498 et seq.; 1521, 1522.
- Vermont, history of her early debt, 384.
- Virginia in default, 397.
- Wabash, Pittsburg Terminal Second 4s, 158.
- Wall Street Journal on the menace of high prices, 1552.
- Warrants, state, 446.
- War-time repudiation and default, 395.
- Washington Terminal Co. 3½s and 4s, 259.
- Water bonds in relation to legal net debt, 603-604.
- Water Company Bonds, Chap. XXVII, 1070 et seq.; in foreclosure, 1100, 1101.
- Water districts, 715, 717.
- Water Power Company Bonds, Chap. XXVIII, 1102 et seq.
- Water power versus steam power plants, 1104.
- Water supply, for private irrigation projects, 1217, 1218; in Carey Act irrigation projects, 1229.
- Water title and water rights for private irrigation projects, 1219, 1220; in Carey Act irrigation projects, 1230, 1231.
- Watered land in Carey Act irrigation projects, 1232; of private irrigation projects, 1221, 1222.
- Waterworks as municipal assets, 566-569.
- Waterworks bonds, 567-570.
- Wealth per capita, in relation to national development (with chart), 1424, 1427.
- Webster's letter to Baring Bros. on state credit, 410.
- West Shore Railroad First 4s, 106.
- West Virginia adjudged liable for a share of the debt of the old State of Virginia, 384, note; Certificates, 494; in default, 397.
- Western interurban development: competitive, 1000-1006.
- Western Union Telegraph Co. Funding and Real Estate 4½s of 1950, 247.
- Wharf bonds, nature of, 258.
- Wheeling and Lake Erie, equipments in receivership, 952; First 5s, 118.
- White and Kemble's *Atlas and Digest of Railroad Mortgages*, 892, note.
- Wilkes County, N. C., 504.
- Wilson on the tariff as a cause for high commodity prices, 1540.
- Wisconsin's excellent financial record, 392.
- Worcester, Mass., high credit, 689.
- Wright Act, the, 1214.
- Yapavai County, Ariz., 498.
- Yield (see Net yield, Income, etc.); of equipment obligations, 965-968.

STANDARD BOOKS IN ECONOMICS

BÜCHER'S INDUSTRIAL EVOLUTION

Translated by Dr. S. M. WICKETT, Lecturer in Toronto University. 898 pp. 8vo. \$2.50.

The Outlook:—A work of prime importance to economic students. While German in the thoroughness of its scholarship, it is almost Gallic in its style, and is, for the most part, decidedly interesting reading.

CLARK: THE LABOR MOVEMENT IN AUSTRALASIA

By VICTOR S. CLARK. 327 pp. 12mo. \$1.50 net.

Quarterly Journal of Economics:—A valuable work based upon investigation in the field. Treats judiciously the various aspects of the Australian labor movement and estimates critically its significance.

HOLLANDER AND BARNETT: STUDIES IN AMERICAN TRADE UNIONISM

Edited by J. H. HOLLANDER and G. E. BARNETT, Professors in Johns Hopkins University. 880 pp. 8vo. \$2.75 net.

Twelve papers by graduate students and officers of Johns Hopkins University, the results of original investigations.

McPHERSON: THE WORKING OF THE RAILROADS

By LOGAN G. McPHERSON. 278 pp. 12mo. \$1.50 net.

Simply and lucidly tells what a railroad company is, what it does, and how it does it.

MORE'S WAGE-EARNERS' BUDGETS

A Study of Standards and Cost of Living in New York City. By LOUISE B. MORE. With a preface by Professor F. H. GIDDINGS. 280 pp. 8vo. \$2.50 net.

A report of the first investigation carried on under the direction of the Committee on Social Investigations at Greenwich House, a social settlement on the lower West Side of New York City, among workingmen's families of different races and occupations.

ZARTMAN: THE INVESTMENTS OF LIFE INSURANCE COMPANIES

By LESTER W. ZARTMAN, Instructor in Yale University. 260 pp. 12mo. \$1.25 net.

It analyzes investments and the earning power of the various assets of life insurance companies. The interest rate is calculated by a new and exact method. The author also discusses the relations of the investments to social welfare, and the proper control of the immense assets of the companies.

HENRY HOLT AND COMPANY

34 West 33d Street

New York

TEXT-BOOKS IN ECONOMICS

ADAMS'S SCIENCE OF FINANCE

By HENRY O. ADAMS, Professor in the University of Michigan.
573 pp. 8vo. (*American Science Series*.) \$3.00.

Edwin E. A. Seligman, Columbia University, in "Political Science Quarterly":—"Will at once command attention as a lasting contribution to economic literature. . . . It is perhaps no exaggeration to say that Professor Adams is at the head of those American scholars who have grasped the essential spirit of modern industrial life; and it is likewise no exaggeration to claim for this volume the distinction of being one of the most original, the most suggestive, and most brilliant productions that have made their appearance in recent decades.

DANIELS'S ELEMENTS OF PUBLIC FINANCE

By WINTHROP MORE DANIELS, Professor of Political Economy in Princeton University. 373 pp. 12mo. \$1.50.

S. Spencer Baldwin, Professor in Boston University:—"It is a piece of work well done both from a scientific and a literary point of view—a text-book with a style. . . . The lucid explanation of the financial system of the United States makes the book particularly valuable for the American student.

SCOTT'S MONEY AND BANKING

By W. A. SCOTT, Professor in the University of Wisconsin.
Revised. 377 pp. 8vo. \$2.00.

H. E. Mills, Professor in Vassar College:—"It is clear, comprehensive, and conservative. All in all, it seems to me the best single book to use in connection with a course on Money and Banking.

SEAGER'S PRINCIPLES OF ECONOMICS

By HENRY R. SEAGER, Professor in Columbia University.
Fourth Edition of *Introduction to Economics*. Revised and Enlarged. 642 pp. 8vo. \$2.25.

David Kinley, University of Illinois:—"It shows improvement with every edition and it always was a first-class book.

SEAGER'S ECONOMICS, BRIEFER COURSE

By HENRY R. SEAGER, Professor in Columbia University.
467 pp. Large 12mo. \$1.75.

Intended primarily for those who wish to give only that amount of attention to economic theory that is essential to the intelligent discussion of practical economic problems.

HENRY HOLT AND COMPANY

34 West 33d Street

New York

BY THE LATE FRANCIS A. WALKER

DISCUSSIONS IN ECONOMICS AND STATISTICS

Edited by Professor DAVIS R. DEWEY. With portrait. 2 vols. 8vo. 454 + 481 pp. \$6.00 net.

Important papers by a great authority on Finance, Taxation, Money, Bimetallism, Economic Theory, Statistics, National Growth, Social Economics, etc.

The Dial :—“Economics in the hands of this master was no dismal science, because of his broad sympathies, his healthy, conservative optimism, his belief in the efficacy of effort; and, in a more superficial sense, because of his saving sense of humor and his happy way of putting things . . . he was the fortunate possessor of a very pleasing literary style . . . clear and interesting to the general reader, as well as instructive to the careful student. There could have been no more fitting monument to his memory than these two volumes, together with the other volume of “Discussions in Education.”

MONEY

550 pp. 12mo. \$3.00.

New York Tribune :—“The essential facts of monetary experience in every country are presented with sufficient fullness and with judicious mingling of authority on disputed points. The work will win a very honorable place for its author among the few who are advancing toward the mastery of a most difficult science.”

MONEY IN ITS RELATIONS TO TRADE AND INDUSTRY

389 pp. 12mo. \$1.25.

Boston Courier :—“The present volume is of a more popular nature than his previous one on Money, but certainly is not on that account less important. Viewed in its immediate relation to the money questions of the day which are entering more and more into politics and becoming therefore active levers for the advancement of society . . . adapted to easy comprehension by a mixed audience, it is a publication of greater moment than its more elaborate and critical predecessor.”

INTERNATIONAL BIMETALLISM

397 pp. 12mo. \$1.25.

The Outlook :—“The best book yet published in the English language for the exposition of the distinctively economic questions at issue between bimetallists and monometallists.”

WAGES

A Treatise on Wages and the Wages Class. 498 pp. 12mo. \$2.00.

Nation :—“The most complete and exhaustive treatise on the wages question with which we are acquainted. . . . The general correctness of its line of argument is in striking contrast to much that has been written on the subject.”

POLITICAL ECONOMY

ADVANCED COURSE. 587 pp. 8vo. \$2.00 net.

BRIEFER COURSE. 415 pp. 12mo. \$1.20 net.

ELEMENTARY COURSE. 323 pp. 12mo. \$1.00 net.

HENRY HOLT AND COMPANY

34 West 33d Street

New York

American Public Problems Series

Edited by RALPH CURTIS RINGWALT

Chinese Immigration

By MARY ROBERTS COOLIDGE, Formerly Associate Professor of Sociology in Stanford University. 531 pp., \$1.75 net; by mail, \$1.90. (*Just issued.*)

Presents the most comprehensive record of the Chinaman in the United States that has yet been attempted.

"Scholarly. Covers every important phase, economic, social, and political, of the Chinese question in America down to the San Francisco fire in 1906."—*New York Sun*.

"Statesmanlike. Of intense interest."—*Hartford Courant*.

"A remarkably thorough historical study. Timely and useful. Enhanced by the abundant array of documentary facts and evidence."—*Chicago Record-Herald*.

Immigration: And Its Effects Upon the United States

By PRESCOTT F. HALL, A.B., LL.B, Secretary of the Immigration Restriction League. 393 pp. \$1.50 net; by mail, \$1.65.

"Should prove interesting to everyone. Very readable, forceful and convincing. Mr. Hall considers every possible phase of this great question and does it in a masterly way that shows not only that he thoroughly understands it, but that he is deeply interested in it and has studied everything bearing upon it."—*Boston Transcript*.

"A readable work containing a vast amount of valuable information. Especially to be commended is the discussion of the racial effects. As a trustworthy general guide it should prove a god-send."—*New York Evening Post*.

The Election of Senators

By Professor GEORGE H. HAYNES, Author of "Representation in State Legislatures." 300 pp. \$1.50 net; by mail, \$1.65.

Shows the historical reasons for the present method, and its effect on the Senate and Senators, and on state and local government, with a detailed review of the arguments for and against direct election.

"A timely book. . . . Prof. Haynes is qualified for a historical and analytical treatise on the subject of the Senate."—*New York Evening Sun*.

HENRY HOLT AND COMPANY

24 WEST 38D STREET

NEW YORK

LEADING AMERICANS

Edited by W. P. TRENT, and generally confined to those no longer living. Large 12mo. With portraits.

Each \$1.75, by mail \$1.90.

R. M. JOHNSTON'S LEADING AMERICAN SOLDIERS

By the Author of "Napoleon," etc.

Washington, Greene, Taylor, Scott, Andrew Jackson, Grant, Sherman, Sheridan, McClellan, Meade, Lee, "Stonewall" Jackson, Joseph E. Johnston.

"Very interesting . . . much sound originality of treatment, and the style is very clear."—*Springfield Republican*.

JOHN ERSKINE'S LEADING AMERICAN NOVELISTS

Charles Brockden Brown, Cooper, Simms, Hawthorne, Mrs. Stowe, and Bret Harte.

"He makes his study of these novelists all the more striking because of their contrasts of style and their varied purpose. . . . Well worth any amount of time we may care to spend upon them."—*Boston Transcript*.

W. M. PAYNE'S LEADING AMERICAN ESSAYISTS

A General Introduction dealing with essay writing in America, and biographies of Irving, Emerson, Thoreau, and George William Curtis.

"It is necessary to know only the name of the author of this work to be assured of its literary excellence."—*Literary Digest*.

LEADING AMERICAN MEN OF SCIENCE

Edited by President DAVID STARR JORDAN.

COUNT RUMFORD and JOSIAH WILLARD GIBBS, by E. E. Slosson; ALEXANDER WILSON and AUDUBON, by Witmer Stone; SILLIMAN, by Daniel C. Gilman; JOSEPH HENRY, by Simon Newcomb; LOUIS AGASSIZ and SPENCER FULLERTON BAIRD, by Charles F. Holder; JEFFRIES WYMAN, by B. G. Wilder; ASA GRAY, by John M. Coulter; JAMES DWIGHT DANA, by William North Rice; MARSH, by Geo. Bird Grinnell; EDWARD DRINKER COPE, by Marcus Benjamin; SIMON NEWCOMB, by Marcus Benjamin; GEORGE BROWN GOODE, by D. S. Jordan; HENRY AUGUSTUS ROWLAND, by Ira Remsen; WILLIAM KEITH BROOKS, by E. A. Andrews.

GEORGE ILES'S LEADING AMERICAN INVENTORS

By the author of "Inventors at Work," etc. COLONEL JOHN STEVENS (screw-propeller, etc.); his son, ROBERT (T-rail, etc.); FULTON; ERICSSON; WHITNEY; BLANCHARD (lathe); MCCORMICK; HOWE; GOODYEAR; MOORE; TILGHMAN (paper from wood and sand blast); SHOLES (type-writer); and MERGENTHALER (linotype).

OTHER VOLUMES covering LAWYERS, POETS, STATESMEN, EDITORS, EXPLORERS, etc., arranged for. Leaflet on application.

HENRY HOLT AND COMPANY
PUBLISHERS (12 '12) NEW YORK

ORTHE'S SOCIALISM AND DEMOCRACY IN EUROPE

By **SAMUEL P. ORTH**, Author of "Five American Politicians,"
"Centralization of Administration in Ohio," etc. \$1.50 net;
by mail, \$1.63.

Traces briefly the spread of the Socialist movement in France, Belgium, Germany, and England, and attempts to determine the relation of economic and political Socialism to democracy—a question of peculiar interest to the friends of the American Republic at this time. The author has made extended visits to the countries studied. He has tried to catch the spirit of the movement by personal contact with the Socialist leaders and their antagonists, and by many interviews with laboring men, the rank and file in every country visited.

The contents include: The Development of Socialism—The Political Awakening of Socialism: The Period of Revolution—The Political Awakening of Socialism: The International—The Socialist Party of France—The Belgian Labor Party—The German Social-Democracy—The English Labor Party—Conclusion—A Very Full Appendix, including a Bibliography, "Programs" of Socialists in different countries, etc.

"A condensed study of the history of Socialism and of the present status of the movement in the countries where it has made the most progress. He writes as a sympathetic student rather than as a socialist."—*Springfield Republican*.

SIMKHOVITCH'S MARXISM VERSUS SOCIALISM

By **V. G. SIMKHOVITCH**, Associate Professor of Economic
History Columbia University. 12mo. Probable price, \$1.75 net.

Professor Simkhovitch's work, the result of many years of study, furnishes a thorough and intimate knowledge of all the intricate theories, problems and difficulties of modern socialism. Marx's Socialism is based on his interpretation of economic history and economic tendencies. According to Marx, these tendencies make Socialism inevitable. Were economic conditions and tendencies different, Socialism would have been impossible. Professor Simkhovitch shows us that the economic tendencies of to-day are quite different from what Marx expected them to be and that socialism from the standpoint of Marx's own theory is quite impossible. Marxism had thus turned against socialism, and the revisionist, the reformist, the Back-to-Kant, the syndicalist and other movements represent a quest for a possible new meaning for the word.

HENRY HOLT AND COMPANY
PUBLISHERS **III '18** **NEW YORK**





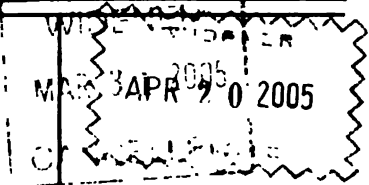


3 2044 020 496 345

The borrower must return this item on or before the last date stamped below. If another user places a recall for this item, the borrower will be notified of the need for an earlier return.

Non-receipt of overdue notices does not exempt the borrower from overdue fines.

Harvard College Widener Library
Cambridge, MA 02138 617-495-2413



Please handle with care.
Thank you for helping to preserve
library collections at Harvard.

